200402

MADE IN THE USA

ramsey

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Our #1 Kit!

Super Pro FM Stereo Broadcaster!

Broadcast just like the pro's, complete with a built-in mic mixer! See page 27 for details!

WIN! Monthly Giveaways!

Visit ramseykits.com
See page 37
No purchase required

NEW!

Audio/RF DDS Signal Generator

Covers DC to 5MHz with 0.1Hz resolution! Variable output from 0 to 10V peak to peak with selectable sine, square, or triangle waveforms! (See page 35)

only $329.95

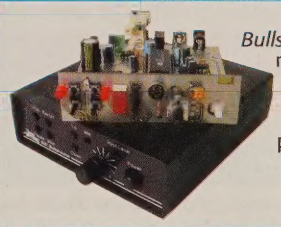
Super FM Stereo Transmitter

NEW!

Our brand new FM transmitter for 2005! Super audio processing that rivals commercial broadcasts, stylish aluminum case, and a 2-line digital readout. Available in both SMT and through-hole! (See page 28)

from $199.95

Digital Voice Storage



Bullshooter-II allows you to record 4 minutes of audio in up to 9 separate messages for retrieval! Perfect for music on hold, AM/FM announcements, sales pitches, and more! (See page 17)

from $69.95

Super Bright LED Strobe Light

No more high voltage, no more fragile Xenon tubes, but wait till you see these super-bright LEDs flash to the music! Different plug-in display boards to meet your custom applications. (See page 7)

only $44.95

SOME OF THE NEATEST STUFF!

Professional Metal Detector Wand
CS10MD, Page 56

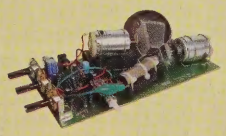
NEW!

only $54.95

Electrocardiogram Heart Monitor
ECG1C, Page 13

from $44.95

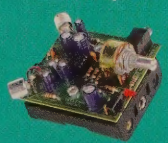
Laser Light Show
LLS1, Page 8



only $44.95

MINI-KITS...WHERE IT ALL STARTS!

Stereo Super Ear
MK136, Page 21

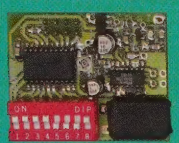


only $9.95

Electronic Dripping Faucet
EDF1, Page 18

only $9.95

Wirelss Data Link Modules
TX/RXSeries, Page 19



from $24.95

Learn Electronics!

130 In One Electronics Lab
PL130, Page 46

only $42.95

300 In One Electronics Lab
PL300, Page 47

only $69.95

500 In One Electronics Lab
PL500, Page 48

only $169.95

AM Radio Kit
AM2, Page 49

only $12.95

AM/FM Radio Kit
AMFM7, Page 49

only $14.95

Shortwave Radio Kit
SR3, Page 49

only $14.95

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Welcome to the world of Ramsey Electronics Where Electronics Is FUN!

Welcome to our 33rd year here at Ramsey Electronics. Wow, three decades plus! We've seen vacuum tubes become transistors that became ICs that became SMT, that became ceramic substrate hybrids. Through all that we have stayed true to a pledge to our hobby customers: With our products you don't just get a bag of parts and some instructions, we take you through the theory of how and why it works in a fun and easy to understand format. Join the thousands and thousands who have enjoyed the thrill of electronics!

Hobby Kits 3-17
Where it all began 33 years ago! Here you will find some of the neatest and most imagination stretching kits around! From a new generation of digital clock kits like the one that started Ramsey decades ago to some of the most advanced kits available today; whether you want to generate 400 thousand volts with a Van deGraaf generator or monitor your heart with your very own Electrocardiogram Heart Monitor, you will find it here!

Mini-Kits 18-21
Use them as building blocks for your more involved projects or as stand-alone mini-projects. Start with the dual blinking LED "Blinky Kit" that we started offering in 1972, or move up to wireless data transmitters, sirens, warble alarms, super gain amplifiers, tone encoders and decoders, Surface Mount Device projects, or animated LED displays. It all begins with Mini-Kits, your cost effective way to get into electronics and have fun!

Transmitters & Receivers 22-23
One of the greatest thrills I had when I was a kid was building my first Shortwave Receiver kit (From Knight Kit!) and listening to the BBC. There I was, twelve years old, and I just built a receiver that worked! What a feeling of accomplishment. Here you will find various receivers and transmitters to listen to short wave, WWV time standards, FM Broadcast or airplanes flying over your house! What a thrill!

Amateur Radio Gear 24-26
Ahhh, to be a ham radio operator! To talk across the world on a watt of power! Some of our most popular kits are our QRP line of transmitters, receivers and amplifiers. Brings the whole concept of Amateur Radio back to its roots...building a rig and then talking across the world with it! You can also experience the fun of Radio Direction finding with our Doppler Direction Finder and our Foxhound Direction Finder.

AM/FM Broadcasters 27-34
Here you will see our top selling products! You can build your own AM or FM Stereo "broadcaster" and be your own local disc jockey! Whether you're looking for the most popular Scouting kit today with our AM1 entry transmitter kit, or our advanced FM100B Professional Broadcaster, you will find the transmitter you are looking for from our large selection . . . the kits that made us famous!

Test & Measurement 35-43
Test equipment is normally expensive. Well, we've proved that theory wrong for years with our cost effective live of experimenter and hobbyist test equipment, all with professional specifications! Whether you are looking for a great signal generator, digital multi-meter, touch tone reader, programmer, amplifier or much, much more, check it out! Why spend a fortune on test equipment when you can save at Ramsey Electronics!

Antennas 44-45
We have always felt that antennas were the missing link in the hobbyist electronics business. Sure, you could buy roof antennas, dipoles, and other standard antennas, but no one drilled down into the theory and possibilities of active antennas. Well, by the mere need to listen to some out of town radio stations we took that challenge, and engineered a line of active antennas and signal magnet antennas that defeat logic...but work!

Educational & Learning 46-49
Before I built that SWL receiver I had to learn all about electronics. Exactly what does a transistor do? What do resistors in series do as compared to resistors in parallel? With our learning lab kits you can discover that and a whole lot more! We have lab kits that feature 130, 300, and 500 separate projects with a huge comprehensive manual. If you (or one of your kids) are interested in learning the basics, this is a great place to start!

Video Cameras & Accessories 50-54
About ten years ago we included some small CCD board cameras in our catalog. Those have since become "old hat", but the popularity has gone wild with the small lipstick and infrared illuminated cameras and other security devices. We carry a line of some of the most reliable and highest quality CCTV cameras and accessories available. Check them out in this section. You will be amazed!

Neat Stuff 55-56
When I was writing this catalog, there were a few items that were really neat, but didn't fit in any of our standard categories. I pondered the question of where to put them. I know...a new category called...Neat Stuff! What will you find there? Just that, some of the neatest things around that have amazed all of us here at Ramsey, and we figured they had to be in our catalog.

Time & Weather 57-59
Does anybody really know what time it is? I'm sure the group Chicago didn't know about Atomic clocks when they wrote that one. Well, now you can know exactly what time it is...to the second! And not only with larger clocks but with small wristwatches too! One of our guys here was complaining that our $60 atomic watches keep better time than his Rolex. After I asked him why he was working here, I told him to buy one of ours!!

Tools & Accessories 60-61
There are a lot of tool sources out there and the last thing Ramsey wanted to be is a tool warehouse! BUT...there are some tools that only electronic hobbyists need, and you DON'T find those at the local hardware megastore! With SMT components smaller than a pinhead, you need some specialized tools. We have just what you want, and a price you can afford. Likewise, if you are looking for good technician tools, we're your source!

Index 63
Gee, what can I say about this? Due to popular demand, you can look up our products either by description or by SKU. Fact for the day...SKU stands for "Stock Keeping Unit". I'm sure you'll remember that one!. Or in other words...Model Number!

HOBBY KITS-Neat Holliday Stuff!

LED Santa Display

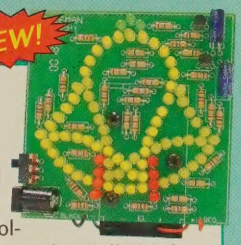
- ✔ 126 LED animated display!
- ✔ Multi color!

Here Comes Santa!

What a way to welcome the holiday season and learn about electronics at the same time! This animated santa and reindeer display has 126 dazzling colored LED's to make a really nice holiday sign. Runs on 9-12VDC so you can use a standard 9V battery or an external power supply so it can be left on continuously. Includes an on/off switch. Measures 3.2" x 5.7". From Velleman.

MK116 Animated Santa Display Kit KIT **$19.95**
AC125 12VDC Power Supply $9.95

Animated Holiday Bell



- ✔ 83 LED animated motion!
- ✔ Multiple colors!

Swings Back And Forth!

83 LEDs provide a really good looking holiday bell that swings back and forth! Multiple green, red, and yellow LEDs provides the bell with a festive holiday spirit the moment you see it! A PC board mounted on/off switch and standard power connector are included. Runs on 9-12VDC or a standard 9V battery (not included). Measures 3.2" x 3.5". From Velleman

MK122 LED Animated Bell Kit KIT **$13.95**
AC125 12VDC Power Supply $9.95

3D LED Christmas Tree

KIT

- ✔ Free standing 3D design!
- ✔ 16 flashing LEDs!
- ✔ Customize with Extra LEDs!
- ✔ Can be hung on the tree!

Dazzle Your Friends!

This Christmas Tree is not your average PC board display! It has 4 "branch" sections giving it a 3D depth look! Its unique design holds a standard 9V battery at its base as its "trunk" and will self-support on a table or desk with or without the battery. 16 flashing red LEDs are placed on the branches. Extra green and yellow LEDs are included to allow you to customize your tree to your design! Runs on 9-12VDC or the 9V battery in its base. Measures 3.5" x 4.0". From Velleman.

MK130 3D LED Christmas Tree Kit $7.95
AC125 12VDC Power Supply $9.95

LED Christmas Tree

KIT

- ✔ 134 LED blinking tree!
- ✔ Random blinking candles!

Light Up Your Tree In Style!

This beautiful electronic Christmas Tree consists of 134 bright LEDs! With the tree are 18 randomly blinking candles to give the tree an exciting animated look! Runs on 9-12VDC or a standard 9V battery. Use an external power supply and leave it on continuously! Includes a PC board mounted on/off switch. PC board measures 5.6" x 3.2". From Velleman.

MK117 LED Christmas Tree Kit $17.95
AC125 12VDC Power Supply $9.95

LED Halloween Pumpkin

- ✔ 25 bright LED's! KIT
- ✔ Random flash like a candle!
- ✔ Super bright illumination LED!

Spook Them With LED's!

You won't be scraping the seeds and guts out of this pumpkin! Six transistor circuit provides a neat random flash pattern that looks just like a flickering candle. Then a super bright LED illuminates the entire pumpkin with a spooky glow! Runs on a standard 9V battery (not included). Includes an edge mounted on/off slide switch. From Velleman.

MK145 LED Halloween Pumpkin Kit $9.95

SMT LED Christmas Tree

- ✔ Alternating flashing 6 SMT LEDs!
- ✔ Great attention grabber! KIT
- ✔ Learn SMT over the Holidays!

Wear A Flashing Tree!

Build this subminiature Christmas Tree and watch it alternately flash green surface mount LEDs! Small enough to wear as a badge or pendant, or to hang on the tree. SMT components are used throughout the kit to give you a great start to surface mount. We know they are smaller than small, so as always, we include extra parts in case you lose or damage any. Runs on one Lithium Ion button cell.

Make sure to check out the magnifiers on page 60. Measures 1.75" x .3". From Velleman.

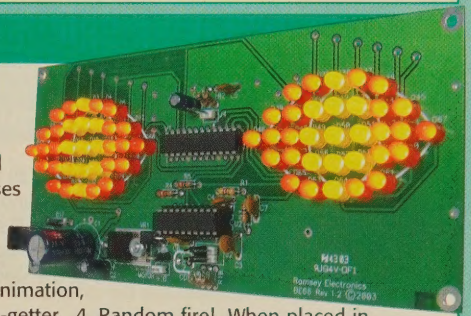
MK142 SMT LED Christmas Tree Kit $8.95

Blinky-Eyes Animated Display

KIT

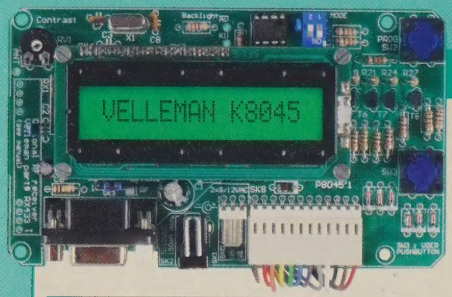
- ✔ Blinking Eye display of 66 super bright LEDs!
- ✔ Microcontroller controlled
- ✔ Changes brightness with ambient light levels
- ✔ Animated with constant motion!

A Real Eye Catcher!



The ultimate animated LED kit that will dazzle you and delight your friends! Uses a microcontroller to randomly select from many different animations such as a long pause before a wink, or a twinkle of the eye to startle passers-by. A perfect kit if you want to light up a costume, window, or pumpkin with a scary repertoire of modes! Four modes to satisfy any enthusiast's desires: 1. Off for long random periods, then blinks or winks. Designed to scare! 2. On for long periods before performing an animation, perfect for costumes and displays! 3. Animates all the time for constant motion, perfect display attention-getter. 4. Random fire! When placed in a pumpkin will light the pumpkin like there is a fire within! Truly awesome! As if this weren't enough, the BE66 can also control a small hobby motor to shake bushes at random intervals or signal an external player to make a scary sound! Also has a CDS cell to sense light. In one mode, the display will dim as it gets dark for battery operation, and in the other it will turn off when it's too bright, so it plays only in the dark! *(No boring, do-nothing twinkle kit here! You have to see it to believe it!)*

BE66 Blinky-Eyes Animated Display Kit $59.95



KIT NEW!

Programmable Message Board

- ✔ Includes backlit LCD display!
- ✔ Serial interface!
- ✔ 8 inputs!
- ✔ Non-volatile EEPROM memory!
- ✔ No programming skills needed!

Add A High Tech Display To Your Project!

If you have never experimented or used an LCD message display, this kit is for you! You can use this as a stand-alone display that is remotely programmed or as an integral display for one of your own projects! With a very nice supertwist backlit 16 character LCD display, you can provide alphanumeric displays in four display modes.

DISPLAY MODES
1. Display the status of all inputs simultaneously
2. Display all active inputs
3. Display active input with highest priority
4. Display text messages in a "tickertape" display

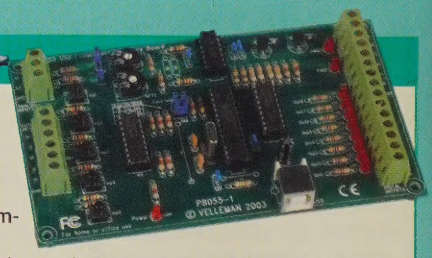
There are 8 separate inputs, and each input accepts dry contacts, open collectors or logic levels. The non-volatile EEPROM memory can store up to 9 sixteen character messages! A default message can be displayed to signal that no inputs are active. RS232 interface is based on 2400/N/8/1 with no handshaking to make for a simple interface. Message transfer software is available online to transfer messages from your PC to the message board. Messages can be recalled by a simple pushbutton. This is the perfect kit to get your hands dirty with alphanumeric displays and their control circuits. It's fun, you learn, and you have a really great display when it's built! Board measures 4.9" x 2.9" x 1.2". If you're looking for a really nice finished display, order the custom case/bezel kit. From Velleman.

K8045	**Programmable LCD Message Board Kit**	**$49.95**
B8045	**Custom Enclosure With Matching Bezel**	**$29.95**

USB Experimenter's Interface Board

NEW! KIT

- ✔ 5 digital input channels!
- ✔ 8 digital output channels!
- ✔ 2 analog inputs and outputs!
- ✔ Diagnostic software & DLL included!



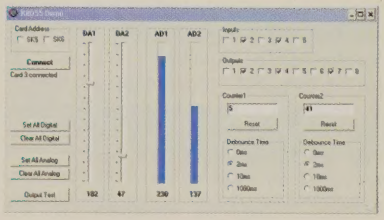
Learn How USB Ports Work... Then Put Them To Work!

Not so long ago the universal answer for external control from a PC was the serial port. It was easy, it was simple, and you really couldn't mess anything up! Then came parallel port outputs for higher speed connections and transfers. What came next? The "Universal Serial Bus" or USB. Everything has gone to USB connections due to their speed, reliability, and plug and play simplicity. In fact, go to an office store and try to find a printer with a parallel port these days! They call those Legacy products...and technology!

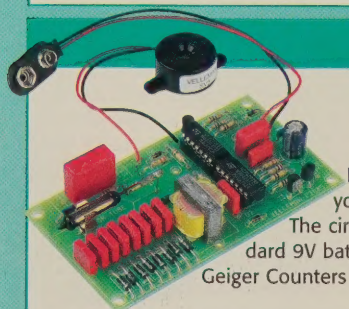
SPECIFICATIONS

5 Digital Inputs:	0=ground; 1=open, on board test buttons
2 Analog Inputs:	Attenuation and amplification, internal test
8 Digital Outputs:	Open collector, 50V/100mA, LED indication
2 Analog Outputs:	0-5V at 1K,m PWM 0-100% open collector
Gen Conv. Time:	20ms per command
Power Supply:	Through USB, 70mA approx.
Software:	Diagnostic Windows software with DLL
PC Requirements:	Pentium class or higher, USB1.0 or higher, Win98SE, WinME, Win2K, XP
Dimensions:	5.7" x 3" x .8"

Well it's time to get hands on experience developing USB interfaces! This board provides everything needed. All communication routines are contained in a Dynamic Link Library (DLL) that is provided along with Windows based diagnostic software. You can also write custom Windows applications in Delphi Visual Basic, C++, or any other 32-bit Windows development tool that supports calls to a DLL. A variety of inputs and outputs are provided that are controlled and monitored with the diagnostic software. Learn USB the fun way, and watch it work! From Velleman. *(No dreaded blue screen of death with this one!)*



K8055	**USB Experimenter's Interface Board Kit**	**$44.95**



KIT NEW!

Geiger-Muller Counter

- ✔ Detects both Gamma and Beta rays!
- ✔ Provides sound alert
- ✔ Long battery life

Build Your Own Geiger Counter!

Remember all those Sci-Fi movies with the handheld Geiger Counters? Well now you can build your own and amaze your friends and even your school teachers! This Geiger-Muller counter detects both Gamma and high energy beta rays! The circuit utilizes ICs and provides an audible alert with a built-in sounder when energy rays are detected. Runs on a standard 9V battery and provides approximately 2 months of battery life at continuous use and normal radiation levels. Learn about Geiger Counters and at the same time feel safer at your home and office.

The compact PC board measures 3.9" x 2.1" x 1.0" and can be mounted in any small enclosure. If you're looking for a super-great looking finished product, order the matching case set below. From Velleman.

K2645	**Geiger-Muller Counter Kit**	**$189.95**
G416	**Matching Case Set**	**$7.95**

Electronic Watch Dog

NEW!

KIT

- ✔ A barking dog on a PC board!
- ✔ Two barking sounds!
- ✔ Automatic sound detection!
- ✔ Eats very little and never sleeps!

Automatically Barks At The Sound Of Noise!

There are many times it's nice to have a barking dog react to someone at your door, or to a strange noise in the house when you're gone. But not all of us can have a dog! The answer...the Electronic Watch Dog! This unique circuit generates two different sounds of barking dogs. You can select which "dog" you would like! Then when your electronic dog "hears" a strange noise it starts barking! Unlike a real dog, the super sensitive microphone has adjustable sensitivity to control what activates it (I mean makes it bark!). The "dog" produces 2 watts audio output at 4 ohms.

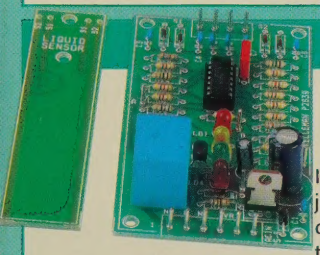
This dog doesn't eat dry or moist dog food. Instead it eats 2-8VAC or 9-12VDC! And it's a small one at best; it only measures 5.6" x 3"! You can order the handy power supply below. If you're not building the doggie into your own case or application, you can also order the custom case set below. From Velleman. *(I'm starting to wonder if this would have been easier than my Chocolate Lab!).*

K2655	**Electronic Watch Dog Kit**	**$32.95**
WCAH2851	**Matching Case Set**	**$7.95**
AC125	**110VAC Power Supply**	**$9.95**

Liquid Level Controller

NEW!

KIT



- ✔ LED level indicators!
- ✔ Relay switch output!
- ✔ Selectable alarm output!

Check The Water Level Remotely!

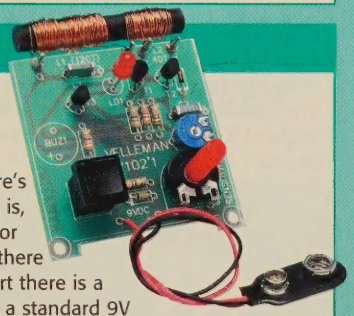
If you have a reason to monitor the level of water or other liquids, the K2639 Liquid Level Controller is just the kit! Not just an alarm like its little Mini-Kit brother the MK108, it gives you an LED display of LOW, MIDDLE, or HIGH levels. You can also have it turn on a pump, or switch open a valve with a 240VAC, 3A relay output. Plus, there is an alarm output that you can selectively set to sound under a HIGH or LOW condition. Runs on 12-14VAC or 16-18VDC. Relay output is rated 3A at 240VAC. Main controller board measures 4.1" x 2.4". Separate sensor board measures 4.1" x 1.0". If you're looking for a nice matching power supply, order our PWR25 below. Now there are no excuses for a wet basement. From Velleman.

K2639	**Liquid Level Controller Kit**	**$19.95**
PWR25	**12VAC Power Supply**	**$9.95**

Metal Pipe & Wire Detector

NEW!

KIT



- ✔ Detect metal objects thru walls!
- ✔ Locates pipes, wires, & ducts!
- ✔ LED indicator shows proximity!

Don't Drill Into That Pipe, Wire, Or Vent!

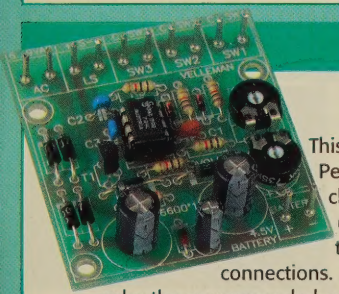
Finding a stud behind a wall is one thing, the old bang on the wall usually helps with that. But how do you know there's not a wire, cable, pipe or vent there? You don't! So you go ahead and drill that hole...or drive in that nail...and there it is, the electrical cable or pipe that you didn't expect! Now it's easy to avoid that hassle! Just hold this small metal detector against the wall and it will detect the presence of metal pipes, wire, vents, and ducts! Now you KNOW what's behind there so you DON'T drill into it! A bright LED glows upon presence of metal to alert you. If you're looking for an audible alert there is a spot on the board for a small buzzer (not included). One prevented mishap more than pays for this little kit! Runs on a standard 9V battery (not included). Board measures 2.2" x 2.5" and nicely fits in many standard cases. A recommended case is available for a neat finished look. From Velleman. *(I personally found out what a long drywall screw does to a 12/3 power cable...spark...zap!)*

K7102RS	**Metal Pipe & Wire Detector Kit**	**$9.95**
G407	**Recommended Case Set For K7120RS**	**$7.95**

Electronic Multi Tone Chime

NEW!

KIT



- ✔ 1, 2, or 3 tone selectable!
- ✔ Adjustable tone and volume!

Replace That Old Bell!

This electronic chime generates three different available chime tones, which can be selected by individual switch closures. Perfect for replacing that old doorbell buzzer or bell and can handle three separate door sounds! The IC design provides a clean audio output of a third of a watt into any standard 8 ohm speaker (not included). The circuit runs on 4.5VDC (three 1.5V batteries, not included) or 6 to 9VAC which is normally provided by the old doorbell transformers! Just use that if you have one. Terminals are included for three separate switch contacts, speaker output, AC, and 4.5V battery connections. The compact board measures 2.1" x 2.3" and can easily be installed in any suitable location. For a great finished look, order the recommended case set below. From Velleman. *(This is 2004, get rid of that old mechanical bell!)*

K6600	**Electronic Multi Tone Chime Kit**	**$24.95**
G416	**Recommended Case Set For K6600**	**$7.95**

KIT NEW!

200W Vehicle Audio Power Amplifier

- ✔ 2 channels at 100W each!
- ✔ Double switch mode power supply!
- ✔ Multiple inputs
- ✔ Includes heatsink efficient case!

Build The Amplifier... And Crank Up The Tunes!

One of the most requested kits is a good vehicle audio power amplifier. Sure you can buy one at any store but there's nothing like building your own to learn how they work! Plus, unlike a lot of the off-the-shelf units, this one has some great features you won't find elsewhere!

The super-efficient double mode switch (PWM) power supply uses MOSFET technology for superb performance. LED indicators display power supply status. Configuration with any car stereo is a breeze with multiple selectable inputs which include CD, line level, and speaker level. No matter what your output is, the amplifier has an input for it! Power output is rated at 100W max per channel. DC input voltage can be set for 12VDC (10VDC to 16VDC) or 24VDC (20VDC to 30VDC) vehicles. Polarity reversal prevents any damage if power is connected backwards.

The attractive included case is only 2" high for easy mounting in a trunk, under a seat, or anywhere in your vehicle. Over-rated heatsinks are used throughout to keep the amplifier running nice and cool. If you're looking for a great audio power amplifier for your vehicle and want to get hands-on experience with amplifiers and switched power supplies, this is for you! From Velleman.

SPECIFICATIONS

Input:	CD, Line, Speaker, selectable
Input Impedance:	47K, or 135 ohm
Input Sensitivity:	0.5VRMS adjustable, Line/CD input 1VRMS adjustable, Low input
Output Power:	2 x 100W Max (2 x 50W RMS) at 4 ohms
Freq Response:	1 Hz to 20KHz, Low input at -3dB 10Hz to 100KHz, Line/CD input at -3dB
Harmonic Distort:	±0.15% THD at 1KHz
S/N Ratio:	>100dB (A-Weighted)
Ch. Separation:	55dB
Power Supply:	MOSFET dual switching supply (PWM) with LED indicators
Power Input:	14.3VDC at 20A (10VDC to 16VDC) 28VDC at 11A (20VDC to 30VDC) Polarity reversal protected
Standby Current:	650mA
Dimensions:	9.8" x 7.5" x 2.0"

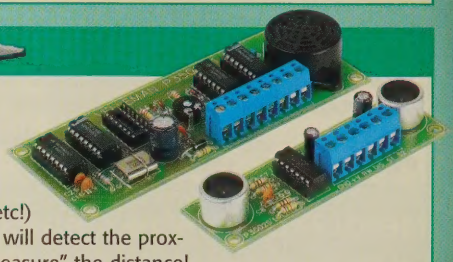
K3503 **200W Vehicle Audio Power Amplifier Kit With Case** **$189.95**

Ultrasonic Parking Radar

NEW! KIT

- ✔ Detects how close you are!
- ✔ Adjustable range!
- ✔ Audible alert BEFORE the crash!

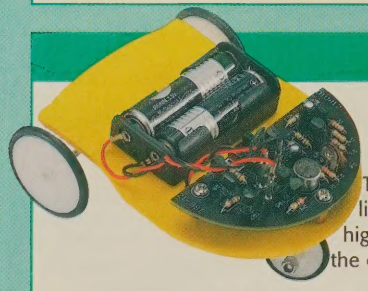
Don't Hit It... Detect It!



If you have problems parking your vehicle without running into things (like the garage, another car, a wall, etc!) then the Parking Radar kit is for you! Mount the sensor board on the rear of your car, truck, or trailer and it will detect the proximity of whatever you're getting close to! Ultrasonic audio waves, higher than human hearing is used to "measure" the distance! The sensor board is connected to the detector that includes an audible alarm. The proximity can be adjusted anywhere from 2" to 5' and has a detection angle of 5 degrees. The uses of this handy little detector are endless, and save a lot of crumpled metal!

Running on 10-15VDC the Parking Radar is ideal for 12VDC vehicle power. Just connect a lighter plug cord and you're all set. The small sensor board measures 1.1" x 3.7". The main board measures 1.9" x 4.9". The boards can be custom installed in your vehicle, in your own case, or you can order the recommended enclosures below. From Velleman. *(My car needs one of these on both sides plus the front and rear bumpers!)*

K3502	**Ultrasonic Parking Radar Kit**	**$39.95**
G416	**Recommended Case Set For Main Board**	**$7.95**
G407	**Recommended Case Set For Sensor Board**	**$7.95**



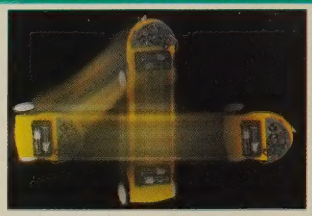
KIT NEW!

Sensor Activated Robot Car

- ✔ Senses sound and turns!
- ✔ Detects obstructions!
- ✔ Easy to build!

Turn It On... Where Will It Go?

This little car may not look like a robot, but it sure acts like one! Designed to look like a futuristic vehicle, the on-board "power train" drives it in a straight path. But a highly sensitive microphone on the board detects sounds, and changes the direction of the car!



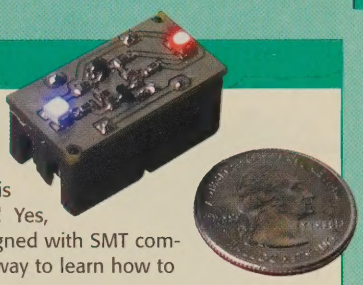
You can whistle to it, yell at it, and it will change directions! Even better, each time the dog barks at it...it changes direction! When it runs into a wall or obstacle, it moves away from it! Runs on 2 standard AA batteries (not included). The car measures 4.3" X 3.5" X 2.6" and gets great MPB! From Velleman.

KSR1 **Sensor Activated Robot Car Kit** **$19.95**

High Intensity SMT Blinky Kit

KIT

- ✔ Super bright SMT LEDs
- ✔ Subminiature board, perfect for displays
- ✔ Operates from 6 VDC with included cells
- ✔ Learn SMT the FUN WAY!



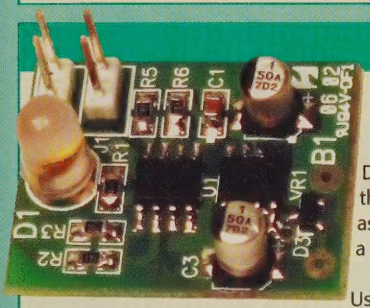
Super Bright... Super Small!

What can be said about a Surface Mount blinky kit? The BL2 is the revival of our classic BL1 blinky kit in a new modern form! Yes, two LEDs that blink, just like our original blinky kit that has made us famous, but this one is subminiature and is designed with SMT components! Why, you ask? Besides the obvious, a really neat, super bright attention grabbing display, there's no better way to learn how to work with SMT components! Don't worry; we even include spare SMT chips for when you goof up!

When complete, the BL2 provides alternating super bright red and blue LEDs. Runs on 6VDC, and we include two LR55 button cells and a cell holder to mount on the backside of the board. It's one complete unit! If you don't want SMT LEDs you can also use regular T1¾ LEDs (included). If you want to learn what SMT is all about, the BL2 is for you! While you're at it, you might want to check out the magnifiers in our tools section on page 60. You'll need them! *(You'll definitely want to keep your reading glasses handy when you build this one!)*

BL2	**High Intensity SMT Blinky Kit**	**$17.95**

SMT Multi Color Microprocessor Blinky



KIT

- ✔ Bright full color LED, red, green, and blue elements
- ✔ 8 Pin Microcontroller
- ✔ Operates from 6 VDC to 12 VDC
- ✔ Extra SMT components are included!

Learn SMT With The Latest Technology LEDs!

Don't let the old title "blinky" scare you away from this marvelous little kit! It was originally designed as a way to show off the latest technology in RGB (Red, Green, Blue) full color LEDs while providing kit builders with a fun and economical SMT practice kit.

Uses PWM methods to generate any color with a simple 8-pin microcontroller, with switchable speed selection as well! The dual jumper control system tells the microprocessor what scanning speed is desired for a full cycle of 16,777,216 possible colors from the LED! It randomly selects different color scanning modes to wow any observer to the point of distraction. This little attention getter is fun to build and has loads of possible applications. The SBRGB is a perfect attention getter for sales displays, name badges, and beanies.

Operates from 6VDC to 12VDC and will run continuously on a standard 9V battery for several days! And if you're new to SMT technology, don't worry, we include extra SMT components to cover your mistakes! You may wonder why you would pay 30 bucks for a blinky kit! Wait till you see the LED smoothly change colors in front of your eyes! *(30 bucks is nothing, if you only knew what the development costs were!)*

Note: This kit utilizes Surface Mount Technology components. These are extremely small, and require magnifying glasses and proper soldering irons. Check these out on pages 60 and 61.

SBRGB1	**SMT Multi Color Microprocessor Blinky Kit**	**$29.95**

High Power LED Strobe Light

KIT

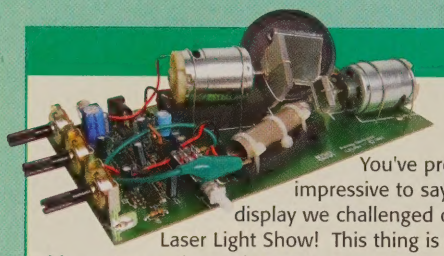
- ✔ Everlasting LEDs won't burn out!
- ✔ Variable flash rate or audio trigger!
- ✔ Bass or treble trigger modes!
- ✔ Use as a stroboscope for stop action effects!
- ✔ Safe low voltage construction-no high voltage or fragile Xenon tube to break!

Dance To The Beat...

Everyone has seen Xenon stroboscopes "stop" a spinning quarter or flash to music. Now you can get the same effect without the expense and hassle of high voltage Xenon tubes! That's right, a strobe without a Xenon flash tube to break! The price of super bright LEDs keeps falling as their light output keeps increasing, making them affordable for everything from traffic signals to vehicle tail lights... and now flashing strobe lights!

A plug-in 3x3 array of super bright Telux™ LEDs creates a brilliant sharp flash just like a Xenon flash tube. The LEDs can also be mounted directly on the main PC Board if desired. In the standard flash mode, a variable rate control varies the flash frequency from approx 1 to 220 flashes per second. In the audio sync mode, the flash is triggered by any audio input you provide into the standard RCA audio input connector. Built-in low and high pass filters allow you to select either bass or treble music triggering! An external trigger in/out connector lets you connect multiple units together for simultaneous flash. Optional plug-in display boards with 8 or 20 LEDs are available for even more strobing power! Just imagine surrounding your room with a few of these, triggered to your stereo! Runs on 12-15 VDC, and unlike the high voltage Xenon strobes of the past, the LEDS1 is safe for the kids to build! Includes a matching custom case and knob set to give your strobe light a great finished look. The plug-in display boards may be mounted on top of the case, or remotely located. Be one of the first to experience the new high output LEDs of 2004!

LEDS1C	**High Power LED Strobe Light Kit With Case**	**$44.95**
LEDS8	**Display Board, Inline Array Of 8 LEDs**	**$17.95**
LEDS20	**Display Board, 5x4 Array Of 20 LEDs**	**$29.95**
AC125	**110VAC Power Supply**	**$9.95**



KIT

Laser Light Show

- ✔ Audio input modulates pattern!
- ✔ Adjustable pattern and speed
- ✔ Projects neat motorized patterns
- ✔ Uses safe plastic mirrors

True Laser Beam Patterns... With Audio Modulation!

You've probably seen a laser show at concerts or on TV. They're pretty impressive to say the least! Knowing that you can't afford a professional laser display we challenged our engineers to design one that's neat and easy to build, yet inexpensive. Well, the result is the new LLS1 Laser Light Show! This thing is sweet! It utilizes two small motors and a small standard laser pointer as the basics. Then, we gave it variable pattern and speed controls to customize the pattern!

Not enough, you say? How about a line level audio input to modulate the pattern with your CDs or music? You bet! Everything is included, even the small laser pointer. And to make the kit absolutely safe, we even used plastic mirrors instead of glass that could break! Runs on 6-12 VDC or our standard 12VDC AC Adapter (not included). If you're looking for a fun and neat little laser kit, the LLS1 is for you!

LLS1	**Laser Light Show Kit**	**$44.95**
AC125	**110VAC Power Supply**	**$9.95**

Dazzling Music Lights

KIT

- ✔ Control 3 channels X 300 watts of lights
- ✔ Lights flicker to music: Low, Mid, High
- ✔ Runs on 120 VAC

A Dazzling Display Of Light!

See music come alive! Three different lights flicker in time to music, one light each for low, mid, and high frequencies. Each is individually adjustable, runs on 120 VAC and controls up to 300 watts per channel - enough to drive spotlights, Christmas lights, mood lights, strip lights, and more! Speaking of mood light, this will really crank up your next party! So create your own light show just like the rock concerts and Vegas shows in your own home. Includes the matching case & knob set shown to give your music lights kit a great finished look.

ML1C	**Music Lights Kit With Case**	**$34.95**

KIT

Light Beam Communicator

- ✔ Send your voice over light - even through windows!
- ✔ 30' to ¼ mile range!
- ✔ Receiver drives a speaker or earphone!

Voice Over An IR Beam Of Light!

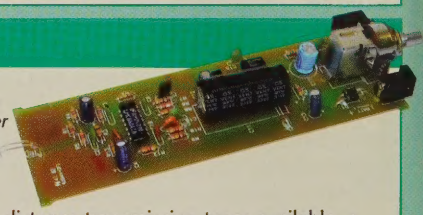
Transmits a modulated infrared light beam up to 30 feet without lenses, up to ¼ mile using simple lenses. Since the beam is modulated with a 30 KHz carrier (like AM radio) there is no effect from 60 Hz hum that is produced by indoor lighting. Easily transmits through windows - ideal for "bugs" or listening to IR television remote controls. The transmitter can use any type of mike and is very sensitive. The receiver employs an IR PIN diode detector and there is enough power to drive any loudspeaker or earphone. The PC board is cleverly "scored" so you can easily separate the Transmit and Receive sections so they can be used individually to transmit at one location and receive at another. Units run on 9 to 12 VDC, and will use a standard 9V battery. The LB56 has been a popular kit for years, and a leading science fair project to show how you can send audio over Infrared! Comes complete with the custom case & knob set shown to give your project a great finished look. Case size: 5"W x 1½"H x 5¼"D.

LB56C	**Light Beam Communicator Kit With Case**	**$29.95**

Laser Beam Audio Communicator

KIT

- ✔ Modulated at more than 16kHz for excellent voice audio fidelity
- ✔ Uses standard pocket laser module for ¼ mile maximum range (included)
- ✔ Each kit includes one transmitter and one receiver
- ✔ Includes microphone and digital AGC circuit for full audio range control



Send Audio Over That Laser Beam!

Now you can talk to your friends over one of the most secure long-distance transmission types available, a laser beam! Our new laser beam communicator allows you to talk with pretty good fidelity to your friends up to a ¼ mile away just using a pocket laser pointer.

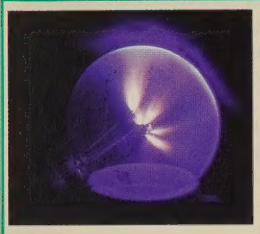
The transmitter uses a microphone or external audio to modulate a laser beam on and off at a rate of more than 16kHz so the audio fidelity is much better than that of a telephone. A telephone is limited to 3kHz; the LBC6K is limited to 6kHz. The receiver includes filtering to remove the 16kHz carrier and leave behind the high quality audio, and then boost the level for use with earphones. To improve the fidelity of the system the transmitter employs audio AGC on the microphone to boost weak audio, and reduce loud audio so that the listener never misses a word Each kit includes a transmitter and receiver, and pocket laser pointer. This gives you a complete one-way audio path. If you need full duplex, or two way, buy two at the special price! Receiver and transmitter are designed to fit in two pieces of 2" PVC pipe for easy mounting and alignment. Each runs on a standard 9V battery, DC adapter or AC adapter (not included). Audio output drives a standard personal stereo headset. Your friends will be amazed when they see you talking over that red laser beam! *(My kids built a couple of these, and were really amazed! But then they asked me why they couldn't see their voice change the laser beam light...I told them...um...ask your Mom!)*

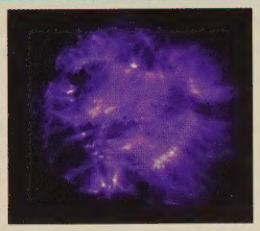
LBC6K	**Laser Beam Communicator Kit (Includes Receiver, Transmitter and Pocket Laser Pointer)**	**$39.95**
LBC6K2	**TWO Laser Beam Communicator Kits, for Duplex or Two-Way Audio** *(Save $5.00!)*	**$74.95**

Plasma Generator

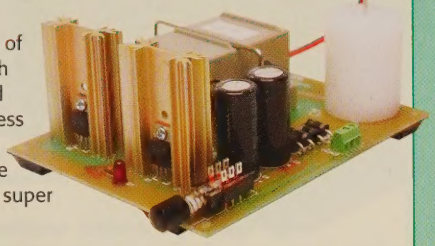
KIT

- ✔ Generate 2" sparks to a handheld screwdriver!
- ✔ Light fluorescent tubes without wires!
- ✔ Build your own Plasma Balls!
- ✔ Generates up to 25kV @ 20 KHz from a solid state circuit!





Shocking Results!



This new kit was conceived by one of our engineers that likes to play with things that can generate large, loud sparks, and other frightening devices. During the process of looking for parts for one of his latest experiments he discovered how difficult it was to find a high voltage transformer that met his requirements. Well, we had a super unit designed expressly for us!

This is one heck of a neat kit! Hey, it really serves no purpose other than producing stunning lighting displays, drawing big sparks, scaring the neighbors and performing lots of high voltage experiments. In the picture, we took a regular clear "Decora" style light bulb and connected it to the PG13 - WOW! A storm of sparks, light tracers and plasma filled the bulb. Holding your hand on the bulb doesn't hurt a bit and you can control the discharge! It can also be used for powering other experiments; let your imagination be your guide! The high voltage at the terminal won't electrocute you, so it's relatively safe, but it can burn you, so use caution. Can also be run from 5-24VDC so the output voltage can be directly adjusted. This is for advanced experimenters only, and not for the faint of heart! *(Unless you buy the ECG Kit on page 13, then it's OK!)*

PG13	**Plasma Generator Kit**	**$64.95**
PS21	**16VAC, Output Power Adapter**	**$19.95**

200 kV Van deGraaf Generator

Wired & Tested

KIT

- ✔ 200,000 volt potential!
- ✔ Sparks up to 5"!
- ✔ Operates in high humidity!
- ✔ Available kit or assembled & tested

Dazzle Them With Huge Sparks! Make Your Hair Stand Up On End!

Create your own lightning with these time-tested devices that have delighted students for decades! Named after the inventor Van de Graaf, a German physicist, this machine produces low-amperage static electricity that can be "shocking" but perfectly safe. Two different pulleys with 2 neoprene belts inside a 1¾" plastic column create and carry static charge up to the 7" polished aluminum collector globe. You can draw out this static charge in a burst of lightning, sparks, or you can even set each hair on your head on end! It's an incredible display! The entire unit is 18" tall and runs on 110VAC and includes a ground clip for discharge wands. Our comprehensive instruction book tells you how to raise hair, produce lightning and electric wind, experiment with St. Elmo's fire or electrostatic attraction and repulsion. For a stunning display use the matching "discharge wand" with your VG200 and watch the sparks fly between the two globes!

VG200W Discharge Wand

If you're looking for a really neat experience and want to learn the basics at the same time, the Van deGraaf generator kit is for you. If you can't wait to build it and just want to have a ball with the sparks, we even offer it factory assembled and tested! Your choice! If 200 kV isn't enough zap for you, check out our VG400 below! *(So we got these in, our techs set one up, and they called me to make my hair stand up on end....wait, my hair fell out when I was 22!)*

VG200	**200 kV Van deGraaf Generator Kit**	**$119.95**
VG200WT	**Factory Assembled & Tested VG200**	**$139.95**
VG200W	**Matching Discharge Wand, 1.3' Rod**	**$59.95**

400 kV Van deGraaf Generator

Wired & Tested

- ✔ Super high output, 400,000 volt potential!
- ✔ Generates sparks up to 12"!
- ✔ Heavy duty construction throughout
- ✔ Factory assembled & tested

When 200,000 Volts Just Isn't Enough!

What's the matter, our 200 kV Van deGraaf doesn't have enough "stooch" for you? You want even more of your hair to stand straight up? You want foot long sparks? Well, for you die-hard shock fans, here you go; how does 400 kV sound? Just like its little brother the VG200, it can create lightning and make hair literally stand up on end! The VG400 produces up to 400,000 volts with special neoprene belts inside a 3" diameter transparent butyrate column to carry the 10 microamp charge up to the whopping 13" polished aluminum globe! It proudly stands 35.5" tall with a very heavy metal base for rock stable operation. The foolproof brush assembly never needs adjustment to guarantee flawless operation...and lots of sparks! The VG400 runs on 110VAC, and includes a power cord, on/off switch, and a grounding terminal for discharge wands. Just like the VG200 we include a comprehensive instruction book that nicely describes all the experiments and displays you can produce.

VG400W Discharge Wand

If you really want to put on a show, use the matching VG400W discharge wand and watch the action between them! It's incredible and produces a fantastic display! The high power VG400 is available factory assembled and tested only to assure you perfect and safe operation. When you receive it, just plug it in and you'll have a hair-raising experience...we guarantee it! If you have a hankering to safely play around with 400,000 volts, then the high power Van deGraaf generator is for you. *(You do know what stooch is, right?)*

VG400WT	**400 kV Van deGraaf Generator, Factory Assembled & Tested**	**$439.95**
VG400W	**Matching Discharge Wand, 2.6' Rod**	**$69.95**

KIT

Ion Generator

Generate A Breath Of Fresh Air!

- ✔ Generate negative ions along with a blast of fresh air, without any noise!
- ✔ Generates a steady state DC voltage at a constant current, not pulsed!
- ✔ Generates 7.5kV DC negative, 400uA. That's a lot of ions!

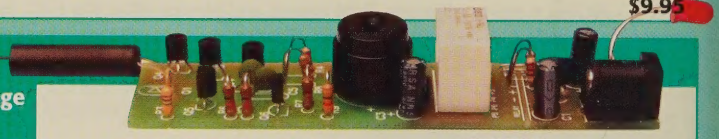
This nifty kit includes a pre-made high voltage ion generator potted for your protection, and probably the best one available for the price. It also includes a neat experiment called an "ion wind generator". This generator works great for pollution removal in small areas (Imagine after Grandpa gets done in the bathroom!), and moves the air through the filter simply by the force of ion repulsion! No fan blades, no noise, just swiftly moving, charged air.

Learn how modern spacecraft use ions to accelerate through space. Generate negative ions for health and healing! Includes ion power supply, 7 ion wind tubes, and mounting hardware for the ion wind generator. *Caution...do not grab the output of the transformer, all the ions may be sucked out of your body! And don't you just hate it when that happens!*

IG7	**Ion Generator Kit**	**$64.95**
AC125	**110VAC Power Adapter**	**$9.95**

Laser Trip Sensor

- ✔ Set up a security fence for over 500 yards of continuous coverage
- ✔ Includes both Audible and Visible Alert indicators!
- ✔ 5 Amp external trigger relay for custom applications!
- ✔ Detector standby current draw of only 10 uA!!!



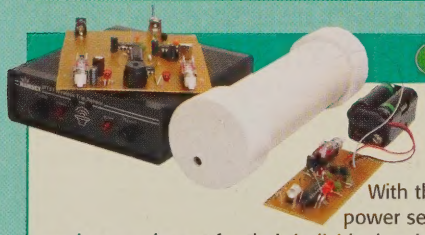
KIT

Build It Tonight... And You'll Sleep Tight!

For years hobbyists have been intrigued by the possibility of using a 'beam of light' to control other devices! The abundance of inexpensive laser elements that have now become available has further pushed the demand for useful products and experimental kits. The LTS1 Laser Trip Sensor was developed with the intention of providing a fun and educational kit that can actually be used constructively upon completion. The kit comes with all you'll need to set up your own laser fence: the laser element (small keychain type high power laser pointer!), the PVC enclosure, and the laser detector with built-in Audible and Visible Alert indicators. *(And yes, you can put the laser pointer on your keychain instead, and get thrown out of concerts, no problem!)*

The LTS1 can be used in a number of different ways. The break-away circuit board gives the user the flexibility of remotely mounting the detector circuit (optionally powered with a standard 9 Volt battery) over 500 yards away without the need for mirrors. If mirrors are used, arrangements in a doorway or as a perimeter fence can almost guarantee detection of any unwanted guests. For added functionality, the relay output (5 Amp rating) can be used to drive other devices such as an event counter, lights, or even camera modules! Operates from 9 - 18 VDC @ 90 to 100 mA. Detector portion can use a standard 9V battery with long life. Board dimensions: 4" L x 1" W (max component height: 5/8"). Includes a 6" length of 1¼" ID PVC to conveniently house and mount the board assembly. *(Now all you need is a fog machine so you can see the laser beams just like those spy movies!)*

LTS1	**Laser Trip Sensor Alarm Kit**	**$29.95**
AC125	**110VAC Power Adapter**	**$9.95**



Wired & Tested

KIT

Wireless Trip Sensor

Remotely Detect Motion!

- ✔ Our popular Laser Trip Sensor...*NOW WIRELESS!*
- ✔ Remote sensing up to 300' away
- ✔ Provides both audible and visual alarms

With the popularity of our Laser Trip Sensor we designed the Wireless Trip Sensor for 2003! We combined a very low power sensor along with a powerful UHF transmitter that can send from over 300 feet away. Each transmitter and receiver can be set for their individual code, allowing you to protect various 'zones' and tell you which zone was violated! The source is generally placed near a continuous power source and the remote transmitter can be placed anywhere without running any wires. The transmitter is typically effective for up to 600 feet. The WTS1 will constantly look at the ambient light in the room or area you wish to protect and sense any blockage of the light. Once that happens, it sends its wireless signal to the matching receiver to alert you! No definitive trip paths and no wires!

The sensor/transmitter mounts in a standard piece of 1½" PVC pipe (included) for easy and inconspicuous mounting. Being battery powered, there are no wires or plugs attached. The receiver includes a visible LED alarm as well as a built in audible alarm. Once tripped, the alarm remains on until it is reset by the front panel reset switch. Transmitter and receiver work at 433MHz and are designed around our proven RF modules (Page 19). Receiver includes a built-in wire whip antenna and the attractive black custom case set shown.

The transmitter operates on four AA batteries (not included) and the receiver runs on 9-15 Volts DC, or our AC125 power adapter (optional). Case size 5"W x 1½"H x 5¼"D. Find out when someone goes into that room today, with the Wireless Trip Sensor.

WTS1C	**Wireless Trip Sensor Kit With Case**	**$64.95**
AC125	**110VAC Power Adapter**	**$9.95**
WTS1WT	**Factory Assembled & Tested WTS1 With Case And Power Supply**	**$104.95**

Infra-Red Switch Control Interface

KIT

- ✔ "Learns" the signal from your existing IR remote controls!
- ✔ Controls up to 4 separate relay outputs at 3 amps!
- ✔ Provides latch on/latch off functions
- ✔ Includes matching case set

Push On, Push Off...ANYTHING!

One of the latest in the series of ICI Infra-Red interfaces from Ramsey! Now it's a breeze to control any on/off function with any button of your existing IR remote control! That's right, any button of your EXISTING remote control!

Using the latest Motorola microcontroller as the "brain" of the controller, the ICI1 learns the IR code from any existing IR remote controller. An IR photodiode detects the IR remote and controls up to 4 separate relays. The relays turn on and turn off with a simple push of the remote control button programmed! The heavy duty relays are rated to switch up to 3A, so the control capabilities are endless! The relay outputs are brought out to 2-pin headers on the rear of the case to accept standard wire connections.

If you are looking to control audio volume with a standard IR remote control, check out our ICI2 IR Audio Control Interface Kit below. It learns your IR remote control functions and can be programmed to provide a variable "volume control" to control any line level audio source! Operates on 7-15VDC or our optional AC125 power adapter. *(push on, push off...the pusher!)*

ICI1C	**Infra-Red Switch Control Interface Kit With Case**	**$39.95**
AC125	**110VAC Power Adapter**	**$9.95**

Infra-Red Audio Control Interface

KIT

- ✔ Controls audio levels from any of your equipment!
- ✔ "Learns" the signal from your existing IR remote controls!
- ✔ 2-Channel RCA audio in/out connections
- ✔ Includes matching case set

Control ANY Audio Equipment!

We took our ICI1IR Switch Control Interface (above) and went one step further! What if you want to control the audio level of something and there is no existing remote control function? Now it's simple! The ICI2 simply goes in line with any audio source to give you full variable control with ANY existing IR remote control! Dual channels with separate controls give you the option of stereo or two separate audio sources!

Using the same Motorola microcontroller brain as the ICI1, the ICI2 learns the IR code from any existing IR remote controller. An IR photodiode detects the IR remote and provides a variable up/down control of your audio source. The ICI2 has dual RCA line level input and output connectors on the rear panel for easy connection. Connect it in line with your audio component and you're all set!

Check out our ICI1(above) if you're looking to control on/off functions like lights, fans, etc. Also check out our new ICI16 (below) that provides a digital 4-bit output for customized applications! At Ramsey, we give you full control...of your remote control! Operates on 7-15VDC or our optional AC125 power adapter. *(One of our guys runs his 2-meter and 440MHz amateur receivers into his house intercom, and separately controls the volume!)*

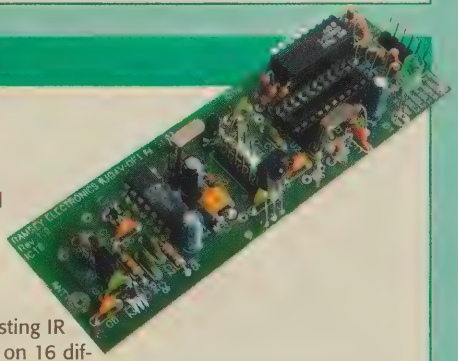
ICI2C	**Infra-Red Audio Control Interface Kit With Case**	**$39.95**
AC125	**110VAC Power Adapter**	**$9.95**

Infra-Red Digital Control Interface

KIT

- ✔ Generates a digital output from any IR remote button!
- ✔ "Learns" the signal from your existing IR remote controls!
- ✔ Plugs into your existing projects and applications
- ✔ The perfect experimenters kit!

Create Any Digital Output !



We gave you on/off switch control with our ICI1 (above) and we gave you variable audio control with our ICI2 (also above), but now we've taken IR remote control one step further! The ICI16 gives you a custom digital output from your IR remote control buttons!

Using the same Motorola microcontroller brain as the ICI1 and IC2, the IC16 learns the IR code from any existing IR remote controller. Once learned, a push of the button generates a 0-15 coded output on 4 lines depending on 16 different unique codes learned from the IR controller! The board uses two standard 6-pin 0.1" center connectors for easy mounting, plug-in, and wiring.

Out of IR range and want to get really creative? Use the ICI16 with our RRW1AC (page 12) which converts your IR to RF. The ICI16 receives the RF and converts it to a 1 of 16 signal digital output! Just use your technical imagination *(The heart of Ramsey's 33year history!)*. Operates on 7-15VDC.

ICI16	**Infra-Red Digital Control Interface Kit**	**$39.95**

Wireless IR Remote Repeaters

KIT

- ✔ Works with almost any remote control, does not need to be programmed!
- ✔ Transmitter converts your IR remote to RF
- ✔ Receiver converts transmitted RF back to your IR signal
- ✔ Operate from 7V to 18V AC or DC

Don't Be A... Control Freak!

Have you ever been frustrated with the range of your remote controls? Tired of having to bounce your IR remote off ceilings and walls? Do you want to run your system from another room or floor? This is the answer to your prayers! Extend the range of your remote controls through walls, around corners, and even from outdoors. Unlike store bought units, error correction can be turned on for pulse width regeneration. The foolproof IR repeater!

Take advantage of wireless technology with this practical kit, which almost anyone can use. The RRW1A and RRW1B pair allow you to rebroadcast your AV Infrared remote controls wirelessly on 433 MHz up to 100 feet. Broadcast through walls, doors, floors, and ceilings. Use the pair to control the satellite receiver downstairs, and watch it upstairs! Be outside and control the tunes on your stereo system in the living room!

Use multiple RRW1A's to broadcast from multiple locations in the house to the single RRW1B receiver near your equipment. Feed the control freak in all of us! Both units operate on 7-18V AC or DC. For continuous operation, use our AC125 AC power adapter. Sleek matching cases measure 5"W x 1½"H x 5¼"D. *Don't you hate it when you go to someone's house and they have a dozen remotes on the coffee table? Don't they know about universal or smart remotes?*

RRW1AC	**Wireless IR/RF Transmitter Kit With Case**	**$29.95**
RRW1BC	**Wireless RF/IR Receiver Kit With Case**	**$34.95**
AC125	**110VAC Power Adapter**	**$9.95**
RRW1P	**Complete Package, RRW1A With Case, RRW1B With Case, Two AC125 Power Adapters *($84.80 Value)***	**$74.95**

Wired IR Remote Receiver/Repeater

KIT

- ✔ Control those components anywhere in the house
- ✔ Works with any 38 KHz carrier IR remote
- ✔ Indicator indicates IR reception
- ✔ Operates from 6V to 16V AC or DC

Don't Rearrange Your Room!

Have you ever been so frustrated with the range of your remote that you have to go through the effort of rearranging your entertainment room? Tired of having to bounce your IR remote off ceilings and walls? Do you want to control your system from another room? The RR1 is the answer for you. We use a super integrated IR detector with bandpass filtering, AGC, and RFI shielding. Receiving range is easily over 35 feet!

It extends the range of your IR remote controls to distances limited only to the wire length you use! Locate the IR receiver in a convenient location reachable with your existing remote control, and run the IR LED extender cable near the front of the equipment you wish to control. It's that easy! Keep your expensive components safely locked away, and let the RR1 be the key to control them!

While you're building this kit, learn the theory of how IR remotes work and how we use the power of a microprocessor to provide you with flawless performance and the added benefit of error correction! The included matching case set measures 5"W x 1½"H x 5¼"D.

RR1C	**Wired IR Receiver/Repeater Kit With Case**	**$29.95**
AC125	**110VAC Power Adapter**	**$9.95**

Microwave Motion Detector

KIT

- ✔ Great introduction to microwave basics
- ✔ Ideal for home alarms

Don't Cook With Them... Detect Motion!

This unit sends out a microwave signal and looks for a return; a moving object will reflect back some microwave energy and the kit detects it. Since microwaves *(no, you won't get cooked or burned by them!)* are used - heat, light, sound or vibration will not affect the sensor. This makes it ideal for car and home alarms, outdoor and garage light operators, animal in-your-garbage alarms, and tons more ideas limited only by your imagination.

The MD3 is a great introduction to the basic principles of our "Speedy" Personal Speed Radar (page 17) and you can use it to investigate the properties of microwaves. Kit includes detailed instructions, theory of operation, the custom case set shown, and lots of applications and hook-ups. Runs on 9 to 15 VDC. Case size: 5"W x 1½"H x 5¼"D.

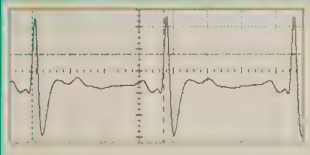
MD3C	**Microwave Motion Detector Kit With Case**	**$34.95**
AC125	**110VAC Power Adapter**	**$9.95**

Electrocardiogram Heart Monitor

KIT — Wired & Tested

- ✔ Visible and audible display of your heart rhythm
- ✔ Re-usable sensors included; just like visiting the lab at the hospital!
- ✔ Bright LED "Beat" indicator for easy viewing
- ✔ Monitor output for professional display on your oscilluscope
- ✔ Simple and safe 9V battery operation

Check Your Own Heart & Stay Healthy!



One of the main reasons we designed the ECG1 was to answer a long running debate here at the shop. We wired up the 'Boss' and finally confirmed he does not have a heart! Use the ECG1 to astound your physician with your knowledge of ECG/EKG systems. Enjoy learning about the inner workings of the heart while at the same time covering the stage-by-stage electronic circuit theory used in the kit to monitor it. The three probe wire pick-ups allow for easy application and experimentation without the cumbersome harness normally associated with ECG monitors. The documentation with ECG1 covers everything from the circuit description of the kit to the circuit description of the heart! Multiple 'beat' indicators include a bright front panel LED that flashes with the actions of the heart, an adjustable level audio speaker output supporting mono or stereo hook-ups, and a monitor output to view the traditional style ECG/EKG waveforms you see on ER!

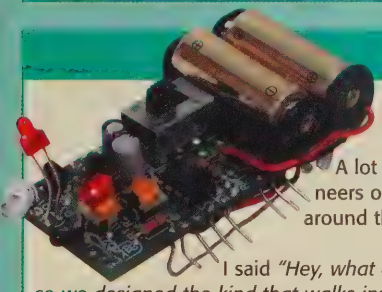
The fully adjustable gain control on the front panel allows the user to custom tune the differential signal picked up by the probes giving you a perfect reading every time! Includes the matching custom case set shown, and operates on a standard 9VDC battery (not included). This is NOT a medical device; it is intended for hobbyist usage only. If you experience any symptoms, seek medical help immediately! *(Editors note: This kit is not intended for catalog editors and webmasters of Ramsey Electronics; it's too late!)*

ECG1C	**Electrocardiogram Heart Monitor Kit With Case**	**$44.95**
ECG1WT	**Factory Assembled & Tested ECG1 With Case And Power Supply**	**$89.95**
ECGP10	**Set of 10 Replacement Reusable Probe Patches**	**$7.95**

Walking Electronic Bug

KIT

- ✔ Avoids obstacles!
- ✔ Turns in response to light!
- ✔ Fights with other "Bugs"!
- ✔ Blinking LED eyes



THIS Bug Doesn't Eavesdrop...It Crawls!

A lot of people have asked us to develop a really good bug. We put our engineers on the project and the next thing I knew there were these creatures crawling around the floor in the production area!

I said *"Hey, what are all these"* and the engineer said *"well, you wanted a really good bug, but we didn't want another Federal raid, so we designed the kind that walks instead of the ones that listen"!* He had a point! This little guy is really neat!

Built around a couple subminiature vibrating cell phone motors, he wanders around looking for things to bump into! No problem there; sensors below his blinking eyes sense obstacles and make him turn away! Likewise, you can steer him around with flashlights or laser pointers! Travel direction and pattern are customized with separate speed and sensitivity controls. Runs on two "N" batteries (not included). This is a fun kit that is guaranteed to keep you amused, at least until the batteries die or the dog kills it! *(I took one of these home, and my Chocolate Lab didn't touch it...she chewed up my glasses instead!)*

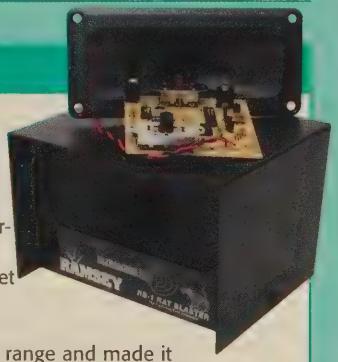
WEB1	**Walking Electronic Bug Kit**	**$29.95**

Rat Blaster Varmint Repeller

KIT

- ✔ Covers over 3,000 square feet
- ✔ Programmable frequencies for optimum repulsion
- ✔ Compare with units costing $150

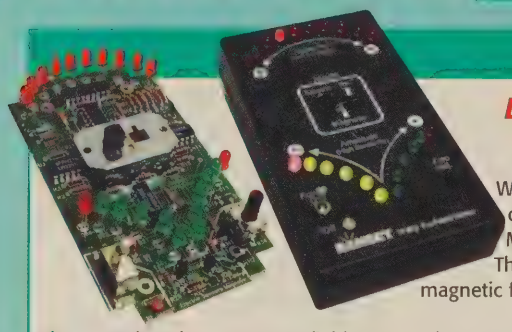
Eliminate Them...Without Harm!



Sure, you've seen these things advertised before. Big claims and a huge price! Well we won't carry on about how you'll be able to keep Godzilla out of your garbage cans, but we will say that this unit will do a nice job of keeping the neighborhood dog, cat, or deer away. Here's the story. We had a problem at the boss's house keeping the deer out of the garden. The boss, being the electronic nut he is, bought one of these things and tried it. It worked pretty well so he planned to get another for protecting the shrubs, but at $150 a box he figured it was cheaper to build his own.

Here it is, cheaper and better! We've increased the power, put in a top-quality transducer (by Motorola), better frequency range and made it affordable. A lot of customers prefer to build it into their own case (or even a garage or shed wall!) so we offer the custom metal case shown as a separate option. Runs on 12 VDC or use our AC adapter. *(Hum-m-m, I wonder if this will work on kids!)*

RB1	**Rat Blaster Rodent and Animal Repeller Kit**	**$59.95**
CRB	**Matching Case & Knob Set for RB1**	**$29.95**
AC125	**110VAC Power Adapter**	**$9.95**



KIT

Tri-Field Meter

- ✔ SEE RF, electric, and magnetic fields!
- ✔ Watch the magnetic field of the earth!
- ✔ Sense different magnetic poles!
- ✔ Detect RF transmitter fields
- ✔ Sci-Fi design
- ✔ Runs on 6 VDC

Detect It ALL With The SCI-FI Detector You Can Build!

We realize you can't "beam down" to the surface of the planet, but you CAN have our new Tri-Field Meter to detect and sense the fields around you! This really neat project actually senses and detects magnetic fields, RF fields, and electric fields! Even Mr. Spock would like this one!

The TFM3 has three separate field sensors that are user selectable to provide a really cool readout on two Sci-Fi styled LED bargraphs! Utilizing the latest technology, including Hall Effect sensors, you can walk around your house and actually "SEE" these fields around you! You will be amazed at what you see. How sensitive is it? Well, you see the magnetic field of the earth...THAT'S sensitive! Also detect radiation from monitors, TV's, electrical discharge, and RF emissions.

You will have fun finding these fields and at the same time learn the technology behind them. Runs on 6VDC (4 AA batteries, not included). Includes a stylish matching case that will impress even the most fussy Klingons! Live long and prosper! *(Our project engineer told me I could detect static in my hairbrush several feet away... But I don't have any hair!!!)*

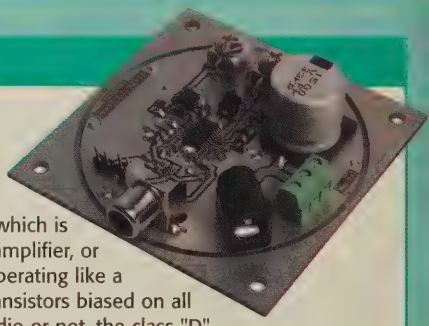
TFM3C **Tri-Field Meter Kit With Case** **$64.95**

Subminiature 20W Audio Amplifier Module

KIT

- ✔ 20 Watts from one SMT package!
- ✔ Super efficient Class D design!
- ✔ Super clean output!
- ✔ No heat/heatsink concerns!

Look Ma...NO Heat!



The UAM2 is probably the neatest audio kit to come along in quite a while! It uses the latest amplifier technology to bring you clear, crisp, high-power audio without any of the heat which is normally generated! This is what is called a class "D" amplifier, or as the media calls it, a "Digital" amplifier. Instead of operating like a classic class "A" or class "AB" amplifier which leaves transistors biased on all the time, losing energy whether they are producing audio or not, the class "D" amplifier only produces power into the load or your speaker!

SPECIFICATIONS	
Audio Output:	20W max
Signal/Noise:	102dB into 8 ohms
Total Harmonic Distortion:	Less than 1%
Audio Input:	Line level
Gain Adjust:	4 input gain settings
Protection:	Auto short to ground shutdown
	Auto short to Vcc shutdown
	Auto short together shutdown
	Auto thermal shutdown
Power Input:	8-18 VDC, 2.1mm connector
	(18VDC for full rated output)
Dimensions:	2.6" square, 1.43" diameter

This means that a small SMT part can deliver a full 20 watts of power without getting so much as warm! YES, I said SMT or Surface Mount! Now you can install this amplifier right inside your speaker enclosures, or wherever this nifty kit will fit, without worrying about a heatsink! Just look at the specs! Unique board can be "snapped" out into a small circle to be double face tape mounted directly to the back of a speaker! This IS a Surface Mount (SMT) kit, so you will need fine tweezers, magnifier, and a decent fine tip soldering iron! See assorted tools and accessories on pages 60 & 61. *(Who ever thought of 20 watts in a single SMT device; I still remember fighting with vacuum tubes to get 20 watts!)*

UAM2 **20 Watt Audio Amplifier Module Kit** **$34.95**
SPS18 **18VDC Switching Power Supply, 1.7A** **$24.95**

KIT Wired & Tested

Stereo Headphone Amplifier

- ✔ Make your headphones sound GREAT!
- ✔ Use with table radios, CD players, tuners, and more
- ✔ Great as a basic preamp for any line level signal

No Headphone Jack? No Problem!

So, you buy a really good radio or CD player, go to plug in your headphones, and there isn't a headphone jack! You find a line level jack, plug in your headphones, and they sound terrible. Sound familiar?

Most good quality gear lacks an earphone output, or if there is one, it is woefully poor quality. We developed this kit to help us listen to our mixers, reverbs, voice recorders and other audio goodies. We took a pair of LM-386 250 mW audio amplifiers, added volume controls, power supply and a handy, switchable, high-cut filter. A common ¼" stereo earphone jack is used for the output - assuring compatibility with all stereo headphones - and RCA phono jacks accept standard line level input signals. There's plenty of volume and of course, the "Fi" is quite "Hi". Available in money saving kit form or fully wired and tested. Runs on 9 to 15 VDC. Includes an attractive matching case measuring 5"W x 1½"H x 5¼"D. *(Did you know the leading manufacturer of high-end table radios recommends the SHA1 to all their customers?!)*

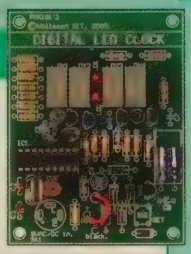
SHA1C **Stereo Headphone Amplifier Kit With Case** **$29.95**
SHA1WT **Factory Assembled & Tested SHA1 With Case And Power Supply** **$64.95**
AC125 **110VAC Power Adapter** **$9.95**

LED Digital Clock

NEW!

KIT

- ✔ Automatic timebase selection!
- ✔ 12/24 hour mode
- ✔ Battery backup
- ✔ Matching case included!



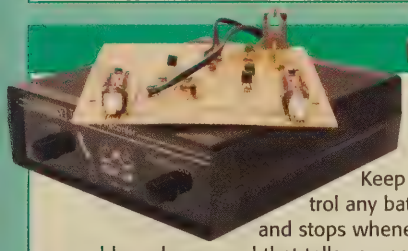
Digital Clock Kits Are Back!

Not your everyday clock kit! This digital clock kit features red 7 segment LED displays in a modern attractive case. Automatic timebase selection gives you the option of internal or line-frequency controlled 50/60 Hz. Internal timebase has a fine tuning adjustment for precision time keeping.

It can also be set for either 12 or 24 hour mode and features battery backup (3 AA batteries, not included) in case of a power failure. Runs on 9V AC or DC. Order our AC125 power supply. Comes complete with the custom designed case to give your clock a great finished look. From Velleman.

MK151	**LED Digital Clock Kit**	**$34.95**
AC125	**110 VAC Power Supply**	**$9.95**

Phone Recorder Controller



KIT Wired & Tested

- ✔ Undetectable on phone line
- ✔ Needs no battery, operates on telephone line power

Telephone Line Powered Automatic Control!

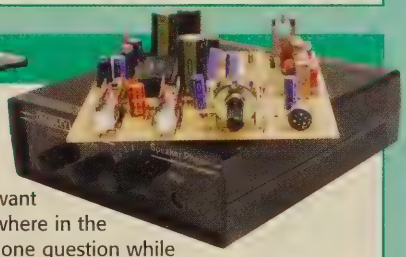
Keep a record of all your telephone calls - automatically. The TT1 connects anywhere on the phone line and will control any battery powered tape recorder that has standard microphone and control jacks. The recorder automatically starts and stops whenever the phone is used and records both sides of the conversation with excellent fidelity. Super easy one hour assembly and a manual that tells you not only how to build the kit, but how it works as well. The controller is easy to use and looks great in the included custom case shown. Case size: 5"W x 1½"H x 5¼"D. The TT1 is also available factory assembled and tested and ready-to-go!

TT1C	**Tattle-Tale Recorder Controller Kit With Case**	**$29.95**
TT1WT	**Factory Assembled & Tested TT1 With Case**	**$59.95**

Super Speakerphone

KIT

- ✔ Needs no battery when connected to phone line
- ✔ Can also be used as hands free intercom!
- ✔ Effective from anywhere in the room



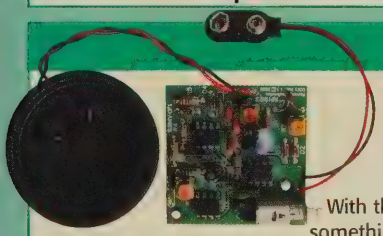
High Performance Motorola Chip!

The Ramsey speakerphone kit efficiently replaces a cluster of add-on phone gadgets to give you what you really want in the shop or office: the ability to answer incoming calls and continue what you're doing while talking from anywhere in the room. We designed this device because we needed such units at work, so the technicians could answer a telephone question while checking a manual or taking a voltage reading. Well, quite a few of our prototypes found their way home and pretty soon we realized that this would make a great kit.

Super for family and conference calling. Or, as we discovered here, connect two together for a completely hands-free intercom - ideal for linking the shop with the rest of the house. Imagine how handy it would be to simply answer back from anywhere in your shop - without stopping what you're doing. It's like linking two rooms together into one. The real beauty of this kit is: 1- it needs no battery when connected to the phone line and 2 - it can be simply connected to the phone line by itself without using an extra telephone. For intercom use, a regular 9 volt battery powers the unit. Includes built-in electret microphone; just add your choice of speaker. Comes complete with the custom case & knob set shown.

SP1C	**Speaker Phone Kit With Case**	**$39.95**

Electronic Cricket Sensor



KIT

- ✔ Chirps like a real cricket!
- ✔ Senses temperature and changes its chirp accordingly!
- ✔ You can actually determine the temperature and amaze your friends!

Doesn't Crawl... But Just As Annoying!

With the incredible popularity of the "Electronic Dripping Faucet" kit (EDF1, page 18), we figured we had to come up with something equally unique! Well, this one is unique...to say the least!

How about an electronic cricket? Sounds just like those little black critters that seem to come from nowhere and annoy you with their chirp-chirp! But like the little critters, we made it sensitive to temperature so when it gets warmer, it chirps faster! That's right, you can even figure out the temperature by the number of chirps it generates! Just count the number of chirps over a 15 second interval, add 40, and you have the temperature in degrees Fahrenheit! Not as fancy as a digital thermometer, but not as unique either! And unlike its little black predecessor, the ECS1 operates from around 50°F to 90°F! I don't think there are too many real crickets chirping away at 90°F! A unique thermistor circuit drives a few 555 ICs providing a variable chirp that is guaranteed to annoy everyone around you! But just watch their faces when you tell them the temperature outside! Runs on 9-12VDC or a standard 9V battery (not included). Includes everything shown, including the speaker and battery clip, to make your cricket project a breeze. *(If it drives you nuts, you probably can squish it under your feet to make it stop...but that voids the warranty!)*

ECS1	**Electronic Cricket Sensor Kit**	**$24.95**

KIT

Stepper Motor Driver

Finally...A Controller For All Those Surplus Motors!

- ✔ Controls direction, step size, and power to the motor
- ✔ Output drives 5 to 15 volts
- ✔ Uses Motorola Stepper Motor Driver IC Chip

The motors are top quality, but how the heck do you drive them without shelling out a fortune? Easy, with the Ramsey Super-Stepper! Build an accurate positioner, X-Y controller, plotter or even a Robot! The Super-Stepper will drive almost any stepper from 5 to 15 volts. You'll be able to control direction, speed, step size (rotational increment), and even power-down the motor after rotating it. An on-board clock generator is provided for easy hook-up-and-go operation or you can externally drive the kit for more exotic control. We give complete details and ideas for additional uses. Put those versatile, first rate (and cheap!) motors to work with this exciting kit. Includes the matching black custom case set. Operates on 5 to 15 VDC. Case size 5"W x 1½"H x 5¼"D.

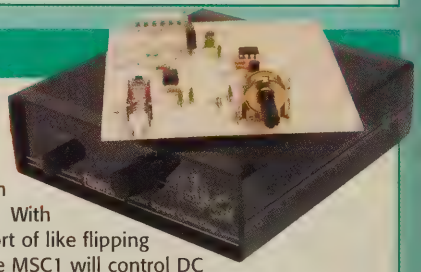
SMD1C	**Stepper Motor Driver Kit With Case**	**$34.95**
AC125	**110VAC Power Adapter**	**$9.95**

DC Motor Speed Control

KIT

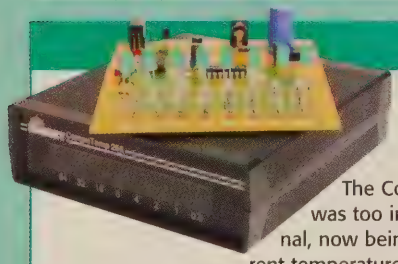
- ✔ Real pulse width modulation for accurate, stable motor control
- ✔ Controls DC motors from 3 to 50 volts - up to 10 Amps!

Full Power...Any Speed!



You see, controlling a DC motor's speed is not as easy as varying its supply voltage. The motor loses torque (power) as the voltage is lowered and finally stops rotating. The MSC1 uses a technique known as "Pulse Width Modulation" - PWM - to control speed. This is the same system used on electric cranes, buses and subway cars. With PWM, the motor receives full voltage whenever energized - however, the duration of the voltage changes; it's sort of like flipping an on/off switch very rapidly! The motor rotates smoothly and with full power - no matter what the speed. The MSC1 will control DC motors from 3 to 50 volts at up to 10 amps! Complete instructions detail how the PWM circuitry operates and some hook-up ideas. Assembly takes only an hour or two. Kit operates on 9 to 12 VDC and controls motor supply of 3 to 50 volts. Includes our custom case set measuring 5"W x 1½"H x 5¼"D. *(To our friend that tried to use this to control 480V/100A industrial motors...sorry about the melted case!)*

MSC1C	**DC Motor Speed Control Kit With Case**	**$34.95**



KIT

Binary Thermometer

CompuTemp...Watch Binary conversion!

- ✔ Accurately read temperature from 0 - 125 degrees Celsius
- ✔ Eight bright LEDs show temp in binary fashion
- ✔ Watch the conversion occur!

The CompuTemp is a return of a classic kit that Ramsey developed and sold back in the 70's. We decided that this kit was too interesting to be left in the archives and restored it to our ranks of "neat" kits! It is slightly enhanced over the original, now being able to display Celsius as well as Fahrenheit. Watch the mesmerizing display as the LEDs count up to the current temperature in binary, then hold the final temperature before starting over. A great conversation piece as well as an educational experience! Learn how to count in binary, as well as how analog to digital converters work! Includes the matching case set shown, measures 5"W x 1½"H x 5¼"D.

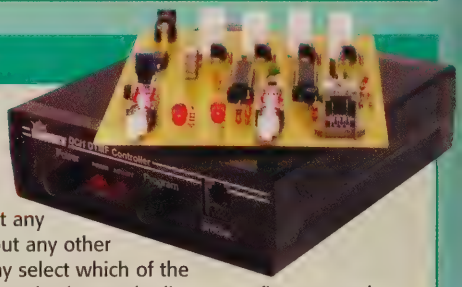
CT255C	**CompuTemp Binary Thermometer Kit With Case**	**$39.95**
AC125	**110VAC Power Adapter**	**$9.95**

DTMF Controller Interface

KIT

- ✔ Remote control from any DTMF device!
- ✔ Call in from the road to turn on your lights...and more!
- ✔ User configurable security code for your protection
- ✔ User feedback tones confirm remote operation success!

Full Control From Any Telephone!



This microprocessor controlled DTMF decoder fits the bill for multiple applications. Remotely control almost any device with the built-in relay circuitry. The DCI series units continually monitor your phone line (or just about any other DTMF audio source) and look for the proper user programmed security code. Once it is heard, the user may select which of the trigger relays to turn on or off (2 or 4 outputs, model dependant). Feedback tones from the DCI are then sent back over the line to confirm your selection. No more wondering if your commands are carried out as is commonly found with other similar devices! Now you can call home and, when your answering machine picks up, control lights, security systems, or just about any number of other custom applications!

The DCI1 is a slim line unit with four 5 Amp (1250VA AC/150W DC) relay outputs, each with its own sure grip screw terminal. Requires 9-18VDC at 300 mA. Our standard AC125 110VAC power adapter is available. The matching case & knob set is included to make your kit look professional and attractive in any setting. *(DTMF, remember those old 500 series desk sets with the bakelite case and the metal rotary dial? You don't? Oh..nevermind I don't either, I'm not that old..really!)*

DCI1C	**DTMF Controller Interface Kit With Case**	**$39.95**
AC125	**110VAC Power Adapter**	**$9.95**

The Bullshooter-II Digital Voice Storage

KIT — Wired & Tested

- ✔ Multiple message storage and selection
- ✔ Full function controls with 7 segment display!
- ✔ Variable output levels to match your equipment!
- ✔ Great for telephone hold announcements, broadcast announcements, and much more!
- ✔ Attractive matching case set included

Feature Packed Digital Storage!

Our BS1 Bullshooter digital voice storage recorder has been very popular to replace tape for basic voice announcements. As the applications have increased, so has the need for additional features. *Consider it done*...with the new BS2 Bullshooter II!

The BS2 provides up to 4 minutes of digital voice storage. That can be broken down in a maximum of 9 separate stored messages. The message number is displayed on the 7 segment LED front panel display! Recording/playing/stopping is similar to a standard recorder. You can start, stop/pause your message during both record and playback! Now you can have separate and distinctive messages to fit various applications...or even different sponsors!

The BS2 has a built-in highly sensitive electret condenser microphone for recording your voice messages. However, you can also plug in external microphone and even an external line level input for that professional studio sounding recording. External inputs also feature variable level controls to optimize your recording!

Playback-wise, the BS2 features adjustable line level outputs (two mono outputs for stereo inputs!) to properly feed any application! This is perfect for telephone system announcements on hold (MOH source), radio broadcasters, transmitters, and audio/visual displays. You can also directly drive a speaker with the built-in amplified speaker output, and monitor the levels with the built-in headphone jack. Whatever your application is, the new BS2 has you covered! Runs on 12-15VDC. *(Gee, when you call us, wonder where the voice announcements on hold are coming from?)*

BS2C	**Bullshooter-II, Multi-Message Digital Voice Recorder Kit With Case Set**	**$69.95**
AC125	**110VAC Power Adapter**	**$9.95**
BS2WT	**Factory Assembled & Tested BS2 with Case Set and Power Supply**	**$99.95**

Speedy Personal Speed Radar Gun

KIT

YOU Be The Cop! How Fast Was He Really Going??

- ✔ Direct readout in miles/hour, kilometers/hour or feet/second
- ✔ 1/8 mile range for average car-sized object
- ✔ Earphone output to hear actual Doppler shift
- ✔ The nation's #1 science fair project!

Here's a kit that's not only tons of fun for everyone, but useful too! This low cost microwave radar uses the same principle found in police units costing thousands more. You'll turn heads when you clock cars, planes, runners, boats, horses, bikes, races, or virtually anything that moves. Speed readout is on two LED displays which can be set accurately (better than 1%) to show MPH, kilometers-per-hour, or even feet-per-second. An earphone output allows you to actually hear the Doppler frequency shift of moving objects - the theory upon which all radars operate.

Uses two 13 oz. coffee or juice cans for antenna (not included)... so start drinking! Antenna unit can be remoted up to 300 feet away. The SG7 is easy and informative to build. Our detailed manual not only carefully guides you to a finished unit, but tells you the hows and whys of Doppler radar. Even though the kit employs microwave circuitry, no exotic tuning is needed. All critical sections are PCB stripline and calibration is as easy as pointing the SG7 at a fluorescent lamp! Your Speedy kit includes a deluxe black ABS plastic case with SPEEDY graphics for a neat professional look. Operates on 12 VDC. Electronics case: 3 5/8" x 5 3/4" x 1 1/8".

SG7	**Speedy Personal Speed Radar Gun Kit**	**$59.95**
AC125	**110VAC Power Adapter**	**$9.95**

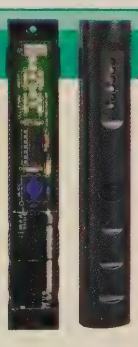
LED Magic Message Wand

NEW!

KIT

- ✔ Message seems to float in mid air!
- ✔ High intensity LEDs!
- ✔ Built-in plus custom messages!

Say It... In Mid Air!



This is as close as it comes to a "Magic Wand"! Shake it back and forth and brilliant messages seem to appear in mid-air! Six high intensity LEDs are microprocessor controlled to display messages and graphics that are pre-programmed into the wand.

You can also custom program a message of your choice! From amazing your friends, making a statement at a concert, or simply telling your loved one how you feel, the message wand can't be beat! Runs on two AAA batteries (not included), and the auto power off circuit gives you long battery life. Measures 6.4" x 1" x .9". From Velleman.

MK155	**LED Magic Message Wand Kit**	**$16.95**

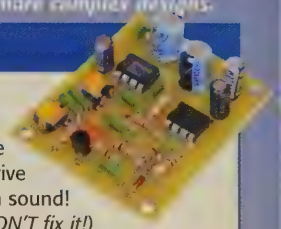
Mini-Kits...Fast, Easy, FUN!

Mini-Kits are handy, easy-to-build, easy-to-use functional kits that can be used alone or as building blocks in larger, more complex designs.

Electronic Dripping Faucet

KIT

- ✔ Makes a great repeating "plink" sound!
- ✔ Create a pleasant alarm signal



Drip, Drip, Drip!

It's somewhere between a dripping faucet and the electronic chime "dinger" in a new car! The EDF1makes a pleasant but very attention getting repeating sound! "Plink, plink, plink, plink" just like the water faucet dripping into a bowl of water! Use it for anything that requires a "different" audio alarm signal, or simply to drive your friends nuts! Plus, you will learn how a simple transistor oscillator together with the eternal 555 timer IC can make such a sound! Runs on 4-9 VDC and has a speaker level output to drive any small speaker. *(That O-Ring assortment at the hardware store WON'T fix it!)*

EDF1 **Electronic Dripping Faucet Kit** **$9.95**

Super Snoop Amplifier

- ✔ Booster amps for radios, Walkmans, etc.
- ✔ High sensitivity long distance listening
- ✔ Powerful 2 Watt audio output

Super High Gain!

KIT

Here's a super sensitive amplifier that will pick up a pin drop at 15 feet! It's an ideal general purpose amplifier, too. Full 2 watts audio output is great for boosting low power receivers and radios, and when wired for high gain, makes an excellent room monitor or big ear shotgun mike amp... easy to listen in on "wildlife' both in the field and in the city! User supplied power from a 6 to 15 VDC filtered power supply rated for at least 500 mAmps or batteries, drives any speaker. Size: 1½" x ½" x 1 ½".

BN9 **Super Snoop Amplifier Kit** **$9.95**

Tickle-Stick

- ✔ Small enough to fit in the palm of your hand, but unlikely you'll hold this after building it
- ✔ Easy way to establish territorial limits for friends, foes, even pets...

Get The Shock Of Your Life!

KIT

Tickle or stimulator - take your pick... once you grab it, you'll let go quick!! Mount this little kit plus a secret switch - like a mercury tilt switch - in an ingenious can or box and watch the fun. Adding a bright ribbon bow is remarkably effective at baiting the unwary! The kit has a pulsing 80 volt tickle output and a mischievous blinking LED. And who can resist a blinking light! Great fun for your desk, "Hey, I told you not to touch!" workbench, or coffee table. Runs on 3 to 6 VDC (not included). This kit has become a fixture at our Hamfest displays, providing us, and others who are in the know, hours of fun. Size: 1½" x 3/4" x 2½".

TS4 **Tickle Stick Kit** **$12.95**

LED Blinky

KIT

- ✔ Ideal starter kit to tweak a child's interest
- ✔ Hundreds of applications...model railroads, hats, badges, toys, etc.
- ✔ Thousands and thousands sold!

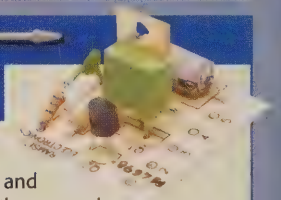
Great Starter Kit!

Alternately flashes two jumbo red LEDs; this is the kit you've seen on name badges, buttons, hats, and toys. But, there's more to it than that. Add a couple of relays and Christmas light strings and you've got yourself a super light chaser just like the theater marquee, or add a zener diode and make an attention getting overvoltage warning light. Kit runs on 3 to 15 VDC (not included).

BL1 **LED Blinky Kit** **$7.95**

Electronic Siren

KIT



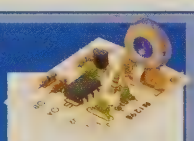
- ✔ Drives any speaker
- ✔ Duplicates the wail of a police siren

Just Like A Police Siren!

Look out, here come the cops! Nope, only you and this siren kit. The SM3 siren exactly duplicates the upward and downward wail of a police siren. Runs on 6 to12 VDC and is a loud 5 watts. Drives any speaker, but a horn type gives best results. Surprise your kids, or wife - if you live dangerously.

SM3 **Electronic Siren Kit** **$7.95**

Universal Timer



- ✔ Use as a Timer or Osc.
- ✔ Triggered by positive or negative pulses

IC Switching...$10.00!

KIT

Add a time delay, keep something on for a preset time, provide timing or clock pulses, or provide an audio oscillator for tones or code practice. This little kit does it all using the 555 timer chip and adding negative or positive pulse triggering and onboard timing pots and capacitors. We give you complete instructions on how to apply this timer to your project! Runs on 5 to 15 VDC and controls loads up to 100 mA. 1¼" X 3/4" X 1 3/4"

UT5 **Universal Timer Kit** **$9.95**

Warble Alarm

- ✔ Loud and clear with 15 watts of power !
- ✔ Drives any speaker

The Mad Blaster!

KIT

Need to break a lease, cause trouble or just plain get attention? The mad blaster is the answer, producing a LOUD, ear shattering, raucous racket. Super for car and home alarms, ball games, or any place where attention is needed fast. Runs on 9 to 12 VDC and drives any type of speaker, although a horn type speaker is the most efficient and will give the most noise. Size: 1 1/8" x 1 ¼" x ½".

MB1 **Warble Alarm Kit** **$9.95**

Voice Switch

- ✔ Directly switches relays or low voltage loads to 100 mA
- ✔ Use noise or your voice to control!

Automatic VOX!

KIT

Voice activated switch (VOX) kit will provide a switched output when it 'hears' sound. Use it to key a transmitter for hands-free PTT, or turn on a tape recorder automatically when people are talking in a room. Kit runs on 6 to 12 VDC and drives up to a 100 mA load such as a relay, tape recorder motor, or transmitter key line. Size: 2 ½ "x ½" x 1 ¼".

VS1 **Voice Activated Switch Kit** **$9.95**

RF Wireless Link Modules

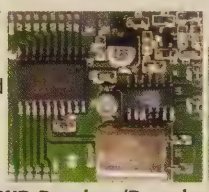
Wired & Tested

TX Data Transmitter

RX Data Receiver

Now you can build those special remote control projects in a flash, and have the ultimate in reliability...and security! Unlike other units on the market, these units are crystal controlled for no frequency drift, yet are ultra small and very low power. These wireless RF link boards are perfect for any wireless application- sending data, car alarms, door openers, home security, electronic monitoring...you name it. Monitor a test point or an alarm point on a circuit, and have it alert you remotely, the applications are endless! Optional encoder/decoder models allow you to program each unit so that they only respond to your set code. Great for encoding sensors or controlling various functions wirelessly - no other processor or computing required! All modules are pre-assembled and tested so you can start your project today! Two versions are available - 433 MHz and 916 MHz, 916 units can use shorter antennas (3 inches) and are better in high RF environments, while the 433 units have better range but need larger antennas (7 inches).

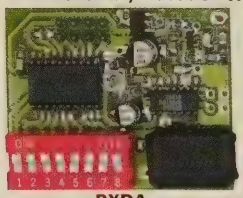
NEW for 2003! A-Series modules include a programmable dip switch for encoder/decoder settings, and common dual row pin-outs for easy integration into your equipment! *(No, these do NOT send audio or video!!! There, saved you the email!)*



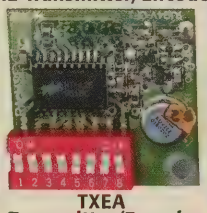
RXD Receiver/Decoder

TXE Transmitter/Encoder

RXD433A	**433 MHz Receiver/Decoder Module w/Dip Switch**	**$39.95**
TXE433A	**433 MHz Transmitter/Encoder Module w/Dip Switch**	**$37.95**
RXD433	**433 MHz Receiver/Decoder Module, Assembled**	**$34.95**
TXE433	**433 MHz Transmitter/Encoder Module, Assembled**	**$32.95**
RX433	**433 MHz Data Receiver Module, Assembled**	**$29.95**
TX433	**433 MHz Data Transmitter Module, Assembled**	**$24.95**
RXD916	**916 MHz Receiver/Decoder Module, Assembled**	**$34.95**
TXE916	**916 MHz Transmitter/Encoder Module, Assembled**	**$32.95**
RX916	**916 MHz Data Receiver Module, Assembled**	**$29.95**
TX916	**916 MHz Data Transmitter Module, Assembled**	**$24.95**



RXDA Receiver/Decoder



TXEA Transmitter/Encoder

Tone Encoder/Decoder

- ✔ Encodes and Decodes
- ✔ Tunable from 40 Hz to 5000 Hz (extendible down to 10 Hz)
- ✔ Drives any load up to 100 mA

40 Hz to 5 KHz!

KIT

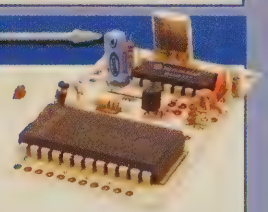
All your tone control needs on a single PC board. Kit will simultaneously decode and/or encode any frequency from 40 to 5000 Hz, (add a small capacitor to go down as low as 10 Hz) Great for PL tones, remote controls, tone burst FSK; anywhere tones are involved. Frequency is easily set with the precision 20 turn trimpot, and the circuit uses a voltage regulator and Mylar cap for the ultimate in stability. Runs on 5 to 12 VDC , will drive up to 100 mA load. Size: 1¼" x ½" x 1½".

TD1 Tone Encoder/Decoder Kit $9.95

Touch-Tone Decoder

KIT

- ✔ Decodes DTMF Touch Tones from telephone, radio, etc.
- ✔ 20 mA output drives relays, LED's, digital devices, etc.
- ✔ Decodes 0 thru 9, *, #, plus A,B,C,D



You can strap the TT7 for detection of any single digit, including the secondary A,B,C,D digits. When the decoder detects the selected digit it will provide a closure to ground for driving a relay, lamp, sounder, or other such load of up to 20 mA. A commercial central office quality decoder IC chip is used, making the TT7 extremely reliable, fast, and sensitive. You may connect the TT7 directly across the speaker or detector output on any receiver, and in fact, we even detail how it may be connected directly to a telephone line. If your needs are simply single function remote tone control, the TT7 is for you. (For digital display of dialed touch-tone numbers, use our TG2 Tone Grabber on page 37, for remote control use our DCI series on page 16). Runs on 5VDC. Size: 1½" x 7/8" x 2¼".

TT7 Touch Tone Decoder Kit $24.95

Visit us... www.ramseykits.com

Touch Switch

- ✔ Drives loads up to 100 mA

2 Separate Circuits!

Touch once - it's on, touch again - it's off, or use the momentary outputs that stay on only as long as touched. Uses low power CMOS circuitry and functions on the principle of hum and noise pick-up when input is touched. Will drive loads up to 100 mA such as relay, bell, siren, etc, runs on 6 to 12 VDC, kit includes info on using as a key for CW keyers. And...there are two completely independent touch switch units on each kit PC board: it's like getting 2 for 1!

KIT

TS1 Touch Switch Kit $9.95

RF Preamp

- ✔ Broadband... from 100 KHz to 1000 MHz !
- ✔ High Gain: > 20 db Low noise < 4dB !

Broadband!

This is the famous preamp that's been written up in all the radio and electronics magazines. New low-cost microwave transistors make it possible to give performance unheard of a few years ago! Runs on 12 to 15 volts at 15 mA, has 50 to 75 ohm impedance and is unconditionally stable. 1"w x 3/8"h x 1½"d.

KIT

SA7 RF Preamp Kit $19.95

RF Actuated Relay

- ✔ Can switch up to 100 watts of RF power or 1 Amp DC

KIT

Senses RF!

This is the unit you need when adding a preamp or power amp in line with an existing antenna. It senses the RF power and closes an on-board DPDT relay which can be used to automatically switch in your added power amp or preamp. The relay is good up to UHF -100W! Many folks use one of these 'life-savers' in front of their expensive test equipment. Runs on 10 to 15 VDC. Senses power as low as 50 mW. Size: 1½" x ½" x 4".

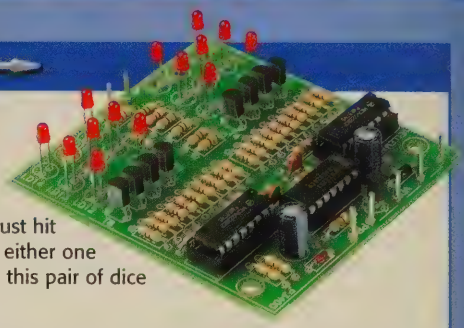
RFS1 RF Relay Kit $19.95

Dual Electronic Dice

NEW!

KIT

- ✔ Displays two separate dice!
- ✔ Single or dual selection!
- ✔ Can't cheat with these dice!



These Dice Won't Fall Off The Table!

A lot of board games require a roll of the dice. And a lot of dice rolls end up on the floor, knocking over the board tokens, the little green houses, or even worse, the red hotels! Not anymore, problem solved! Just hit the switch and the dice randomly cycle and slowly come to a rest, displaying the number! You can select either one die or a pair of dice, depending on the game. Bright LEDs display the same patterns as regular dice. And this pair of dice won't allow cheating!

When the game is over, don't worry, the auto power saver switches them off after 30 seconds to save battery life. Runs on 8-12 VDC or a standard 9V battery. Board measures 3" x 2.8" and can be mounted in your own special enclosure. You can be sure that the dice won't end up on the floor! From Velleman. *(Well, when the cheater isn't happy I guess he could throw it on the floor!)*

K3400 **Dual Electronic Dice Kit** **$15.95**
AC125 **110VAC Power Adapter** **$9.95**

Shaking Electronic Dice

NEW!

- ✔ Just give it a shake like real dice!
- ✔ Microprocessor controlled!
- ✔ Auto power off!

KIT

Get Two For Snake Eyes!

You don't have to throw it, just shake it, and it acts just like regular dice! It rolls out slowly and flashes the last combination or "winning number"! Microprocessor controlled circuit is fun to learn. Runs on one 3V Lithium button cell (not included). Get two to simulate a pair of real dice to get "snake eyes" or "box cars"! Measures 1.4" x 1.4" x 1.3". From Velleman.

MK150 Shaking Electronic Dice Kit **$11.95**

Electronic Roulette

NEW!

- ✔ Spinning sound!
- ✔ Winner tune!
- ✔ Auto power on/off!

KIT

Easy To Spin This One!

This electronic version of roulette features a neat round PC board with 37 LEDs simulating a real spinning Roulette game! And when it spins, you hear the spinning sound with microprocessor technology! When the spinning stops and there is a winner you hear a winning tune! Easy assembly makes it a cool beginner kit that uses ICs. Runs on 3 AA batteries (not included). Board measures 3.6" diameter. From Velleman.

MK119 Electronic Roulette Kit **$15.95**

LED Traffic Signal

NEW!

- ✔ 4-way traffic signal!
- ✔ Automatic switching!
- ✔ Adjustable delay!

KIT

Stop The Traffic!

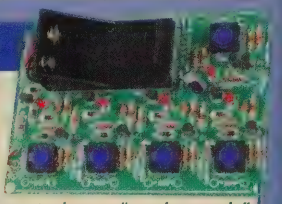
Impress your friends by building a really neat simulated 4-way traffic signal light! Bright red, green, and yellow LEDs are positioned just like a 4-way signal, and automatically sequence. Adjustable timing allows you to change the delay, something we all wish we could do on the road! Runs on a standard 9V battery (not included) and draws only 15mA for long life. Perfect for model railroads, models, and just plain hobbyists that want to build something really neat! Measures 2" x 1.4" x 4.5". From Velleman.

MK131 LED Traffic Signal Kit **$7.95**

4 Player Quiz Table

- ✔ Shows first button pushed!
- ✔ Quizmaster reset!
- ✔ Can be daisy-chained!

NEW!



And The Correct Answer Is?

Just like the TV game shows, you can have up to 4 players "on the ready" just waiting to be the first one to answer the question. But how do you know who's first? That's simple with the MK133! 4 player push buttons are provided. The first player to push their button is indicated with a latched on LED. Just like on TV! The "Quizmaster" button resets it for another round! If you have more than 4 players you can even daisy-chain two MK133s together for up to 8 players! Runs on a standard 9V battery (not included). Measures 4.3" x 3.1". From Velleman.

MK133 4 Player Quiz Table Kit KIT **$9.95**

SMT LED Smiley Face

NEW!

- ✔ Alternating flashing SMT LEDs!
- ✔ Can be worn as a pendant!

Smile...And Learn SMT!

Build this little attention grabber and learn about SMT at the same time! Measuring only 1" this smiley face can be worn as a pendant or just as a conversation piece. Surface mount components are tiny, so make sure to have a magnifier and tweezers (see Tools on page 60). And don't worry about losing or damaging the parts; we give you extras! Runs on a 3V Lithium Ion button cell (not included). Measures 1.1" x .3". From Velleman.

KIT

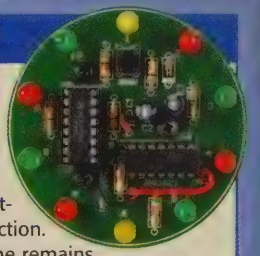
MK141 SMT LED Smiley Face Kit **$8.95**

Wheel Of Fortune

NEW!

- ✔ Electronic LED spinning action!
- ✔ Spinning gradually decreases!
- ✔ Auto power off!

KIT



Where She Stops...

Acts just like the casino game! Just push the button and the 10 LED's start showing a spinning action. They gradually slow down until the "winning" one remains lit. Push the button to start over again. Operates on a standard 9V battery (not included) and low power consumption along with auto on off assures a long battery life. Measures 2.6" x 1.3". From Velleman.

MK152 Wheel Of Fortune Kit **$7.95**

LED Switcher Blinky

NEW!

- ✔ Run a 3V LED with 1.5V!
- ✔ Learn about switching supplies!
- ✔ Super bright Blue LED!
- ✔ Long battery life!

KIT

See..It IS Possible!

More than 30 years ago we came out with our ever famous BL1 Blinky kit. Thousands and thousands were built teaching people exactly how LEDs and transistor circuits work. Now we're going one step further! The LSW1 will show you how to light a 3V LED with a single 1.5V battery! The circuit is actually a very unique "switching power supply" which steps up the 1.5V battery voltage to around 5VDC! If you're new to switching power supplies this is the perfect little kit to get your feet wet!

If you're a serious hobbyist and want to see the neatest little circuit then you're in store for a treat too! When you're all done you end up with a super bright Blue Telux™ LED running on 1.5V! But it doesn't blink you say? Sure it does...at 140kHz! Requires a single AA battery (not included. Board measures 1.5" x 1.5".

LSW1 LED Switcher Blinky Kit **$14.95**

Cable Polarity Checker

NEW!

- ✔ Checks continuity & polarity!
- ✔ Auto power off!
- ✔ Pushbutton operation!

KIT

Which Way Should It Go?

We've all been there. You're running speaker wires through your house, and you don't know which wire is which for polarity. Well this neat little kit takes care of it!

Simply hook up the remote board to one end, and the main board to the other end. LEDs show you opens, shorts, polarity OK, and polarity reversed! It's that simple! A lot of uses besides speaker cables, think about it! Runs on a standard 9V battery (not included). Features auto power-off for long battery life. Main board measures 2.2" x 1.6" while the remote board measures 1.6" x .3". From Velleman.

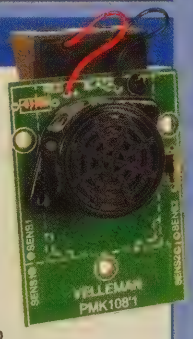
MK132 Cable Polarity Checker Kit **$7.95**

Water Alarm

NEW!

- ✔ Sounds alarm when water is present!
- ✔ Can be remotely located!
- ✔ Includes buzzer alarm

KIT



Find Out Before You're Flooded!

So the sump pump quits and because you don't live in your basement you're never the wiser. The result? A flooded basement!

Now build a cute little water sensor alarm to let you know! Simply mount the alarm in the area you want to sense water and the moment it touches the contacts the included alarm will sound.

The sensor can be remotely located by cutting that section of the board if desired. Runs on 9V battery (not included) Size: 1.8" x 2.8". From Velleman.

MK108 Water Sensor Kit **$7.95**

Stereo "Super Ear"

NEW!

- ✔ Amplifies sound 50X!
- ✔ Listen in stereo!
- ✔ Microphones included!

What Did He Say?

The Super Ear is an ultra high gain stereo audio amplifier! And when we say high gain, we mean it! It boosts audio 50 times and you can listen to it in stereo besides! Miniature high sensitivity microphones are placed at 45 degree angles to give you maximum separation. This little kit also includes an on/off switch, volume control and audio output connector. Runs on 3 AAA batteries (not included). Measures 2.4" x 2.1". From Velleman.

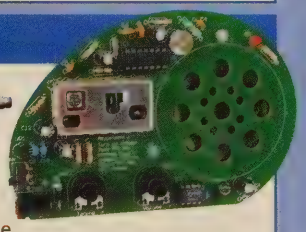
MK136 Stereo Super Ear Kit KIT **$9.95**

FM Radio

NEW!

- ✔ Preassambled front end!
- ✔ No coils to wind!
- ✔ Includes everything!

KIT



Build It And Listen To It!

The greatest part of building a kit is the enjoyment afterwards seeing and hearing the results of your work! Now you can build yourself a little FM radio receiver, learn about FM radios, and have a neat little radio in the end! The RF front end is preassembled to make it simple. Receives the whole FM broadcast band of 88-108 MHz. Includes an on/off switch, volume control, speaker, and LED indicator. Runs on 12VDC. Measures 4.8" x 3.3". From Velleman.

MK118 Portable FM Radio Kit **$19.95**
AC125 12VDC Power Supply **$9.95**

Pocket Vu Meter

NEW!

- ✔ LED bargraph display!
- ✔ Built-in microphone!
- ✔ Case included!

KIT

Watch That Music Playing!

This is really sweet! It's a hand held audio meter that fits in your pocket! The built-in high sensitivity microphone picks up the music playing and displays it on an LED bargraph meter! The designer enclosure looks great and features an adjustable sensitivity control and on/off switch. Runs on one 3V Lithium button cell (not included). From Velleman. *(This is a neat little gadget to have at a concert...to show how loud it is!)*

MK146 Pocket Vu Meter Kit **$9.95**

Light Sensitive Switch

NEW!

- ✔ Adjustable sensitivity!
- ✔ Heavy duty relay included!

Dark Out, Lights On!

This tiny kit is designed to automatically turn something on at night time and back off at dawn! A heavy duty relay provides NO and NC contacts rated at 5A at 24V. IC design delay circuit avoids cycling on/off at marginal thresholds. Wide range sensitivity adjustment matches any application. Runs on 12VDC. Use our AC125 power supply for plug-in ease! Measures 2.6" x 2". From Velleman.

MK125 Light Sensitive Switch Kit KIT **$7.95**
AC125 12VDC Power Supply **$9.95**

Shortwave Receiver

KIT

- ✔ Tunable over 2 MHz bandwidth anywhere in the 4 to 20 MHz Shortwave Band
- ✔ Clean superheterodyne design with automatic gain control
- ✔ Extremely sensitive front end!

The Perfect "Beginners Receiver"!

Here's a complete shortwave radio guaranteed to inspire awe in any listener. Imagine tuning in the BBC, Radio Moscow, Radio Baghdad and other services with just a few feet of antenna. This very sensitive (about a microvolt!) receiver is a true superhet design with AGC and plenty of speaker volume.

Smooth varactor diode tuning allows you to tune any 2 MHz portion of the 4 to 20 MHz frequency range, and the kit conveniently runs on a 9 volt battery (not included). Our matching custom case and knob set gives your radio a finished, polished look. Amaze yourself and others - see how you can listen to the world on a receiver you built in an evening. Drives any speaker or earphone. Included case measures 5"W x 1½"H x 5¼"D.

SR2C	**Shortwave Receiver Kit With Case**	**$44.95**

Shortwave Converter

KIT

- ✔ Receives and converts two (1 MHz wide) shortwave bands to standard AM band for listening on your existing AM radio
- ✔ Push-button switches provide easy selection of SW1, SW2 or AM Broadcast
- ✔ Tuning performed on AM radio
- ✔ Built-in antenna switching

Inexpensive Start To SWL!

The SC1 converter brings the sounds of the world right into your car, radio, or home stereo (set to receive AM broadcast band). Front panel push switches let you choose easily between regular AM radio and the shortwave bands. An additional switch allows the selection of any two bands of interest, each 1 MHz wide.

Set one range for daytime frequencies and one for nighttime when propagation is different; choose any two frequencies between 3 and 22 MHz. Frequencies are tuned on your AM radio, making it easy to log stations or set presets. A built-in antenna switch automatically switches the existing AM antenna to either the radio or converter, making hook-up/operation easy and fast. External power jack for 9 to12VDC is a standard 2.1mm female. Included case measures 5"W x 1½"H x 5¼"D.

SC1C	**Shortwave Converter Kit With Case**	**$39.95**
AC125	**110VAC Power Adapter**	**$9.95**

WWV Time Receiver

KIT

- ✔ Receives 10 MHz WWV transmissions
- ✔ The world's time standard at your fingertips!
- ✔ Built-in speaker plus audio output jack
- ✔ Super easy assembly with no tuning required!

Does Anybody Really Know What Time It Is??

What time is it? This quality WWV receiver is designed to receive the 10 MHz National Institute of Standards (NIST) atomic clock - the sole time standard for the Planet! Very sensitive receiver needs only a few feet of wire to pick up WWV, utilizes unique Log/Anti-log detector circuitry for super easy assembly, alignment, and operation.

Detailed manual teaches theory of receiving systems - you'll be an expert after building this baby - and it only takes a few hours! Believe it or not, no tuning is required for operation! Runs on 9 volt battery, includes speaker, too. Crystal included for 10 MHz reception; change the crystal to receive other frequencies in the 5 - 15 MHz range. Includes a custom matching case set for a great finished look. *(Now I have that song stuck in my head...does anybody really care?!!*

HFRC1C	**WWV Shortwave Receiver Kit With Case**	**$44.95**

Speech Scrambler & Descrambler

KIT Wired & Tested

- ✔ Full duplex operation allows scrambling and descrambling at the same time
- ✔ Bypass mode provides quick change from direct audio to descramble

Decode That Garbled Gibberish!

Communicate in total privacy over your radio! This is the popular SS70A descrambler/scrambler that you've read about in all the Scanner and Electronic magazines. The technology used within the unit is known as speech inversion which is compatible with many police department systems; hook it up to your scanner speaker terminals and you're in business. (However, always be sure to check with your local authorities to ensure that you're not straying into any unlawful communications reception.) The SS70A is full duplex in operation - you can scramble and unscramble at the same time. Easily configured for any use! Easy to build since all complex circuitry is contained in a custom ASIC chip which provides clear, clean audio. Powered by 9 to 15VDC, with 3.5mm mini phone type input/output jacks. The included case measures 5"W x 1½"H x 5¼"D.

SS70C	**Speech Scrambler/Descrambler Kit With Case**	**$39.95**
SS70AWT	**Factory Assembled & Tested SS70C With Case And Power Supply**	**$69.95**
AC125	**110VAC Power Adapter**	**$9.95**

Aircraft Receiver

KIT

- ✔ Picks up aircraft, control towers, and more!
- ✔ Tunes entire 118 MHz to 136 MHz Aircraft band
- ✔ Automatic gain and squelch controls

Kit Planes Magazine... "Puts You In The Pilot's Seat"!

Tune into the exciting world of aviation. Listen to the airlines, big business corporate jets, hotshot military pilots, local private pilots, control towers, and other interesting and fascinating air-band communications. You'll hear planes up to a hundred miles away as well as all local traffic.

The AR1 features smooth varactor tuning of the entire air band from 118 to 136 MHz, effective AGC, superheterodyne circuitry, squelch, convenient 9 volt operation and plenty of speaker volume. Includes our custom case & knob set for a great looking finished receiver! Case measures 5"W x 1½"H x 5¼"D. Operates on 9 VDC battery (not included). Use with any speaker or earphone.

AR1C **Aircraft Receiver Kit With Case** **$44.95**

FM Broadcast Band Receiver

KIT

Perfect For "Out Of Band" Listening

- ✔ Standard FM receiver, with larger tuning range of 70 to 110 MHz
- ✔ Ideal for FM wireless mikes, SCA programming, or standard FM broadcasts
- ✔ Demodulated audio output for driving our SCA1 decoder

Ideal for standard FM broadcast band as well as large portions on each side, making it great for bug monitoring or detection and receiving SCA broadcasts. Features one microvolt sensitivity, 10.7 MHz IF, 250 mW audio output, varactor diode tuning, IC FM detector chip, demod output to drive our SCA1 decoder and operates on 9 VDC battery (not included).

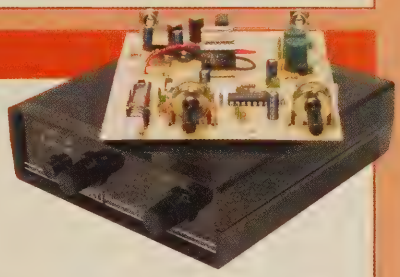
Drives any 4 - 45 ohm external speaker. Includes our matching custom case set, measuring 5"W x 1½"H x 5¼"D.

FR1C **FM Broadcast Band Receiver Kit With Case** **$34.95**

SCA Subcarrier Decoder

KIT

- ✔ Tunes entire SCA subcarrier band, 50 to 100 KHz
- ✔ Features both speaker and line level audio outputs
- ✔ Simply plugs into our FR1 FM broadcast receiver or to detector in any FM receiver



How DO They Get That Commercial Free Music??

Believe it or not, they get it off the local FM radio station, but with a special decoder. Now you can build your own decoder and tap into the wealth of programming available to those "in-the-know."

Programming available runs the gamut from stock quotes, to rock music, to easy listening, to all news. These services are "hidden" in subcarriers riding along with the standard FM radio station's usual programming. The decoder connects to the detector output on an FM receiver; if your receiver does not have such an output, consider our FR1C above! Tune into what you've been missing, try the SCA1. Includes a custom case set to match the FR1 receiver above. Case measures 5"W x 1½"H x 5¼"D.

SCA1C **SCA Decoder Kit With Case** **$39.95**

Model Rocket Tracking and Telemetry Transmitter

Super Stable, Crystal Controlled

KIT Wired & Tested

- ✔ Easily track your rocket using a scanner receiver!
- ✔ Crystal controlled – no frequency drift!
- ✔ FM transmission!
- ✔ Subminiature SMT construction to fit any application!

The sky's the limit for this super stable, drift free transmitter! Most low cost transmitters are tunable and subject to frequency drift when subjected to temperature variations and vibration, etc. The MR6 frequency is set by a crystal to a frequency in the 2 meter Ham band of 146.535 MHz, easily picked up on any scanner radio or 2 meter rig. Changing the crystal allows you to change frequency anywhere in the 140 to 160 MHz range, and crystals cost only five or six dollars.

The telemetry/data input on the MR6 will accept any audio frequency telemetry source from your application's sensors. Transmission range is approximately ¼ mile line of site. The MR6 uses the latest in SMT surface mount technology and parts, so if you want to learn more about SMT, this is the kit for you! Don't be afraid of losing those small parts; we even include a few extras just in case you sneeze and lose a part! Power is supplied by 3 volt Lithium camera battery or a pair of watch batteries which are included.

MR6 **Model Rocket Tracking Transmitter Kit** **$44.95**
MR6WT **Factory Assembled & Tested MR6** **$79.95**

KIT

QRP Mini-Receivers

Get In On The Action...For Under $40!

- Sensitivity of approximately one microvolt rivals the big rigs!
- Covers 500 KHz of selected band
- Receives CW, SSB and AM
- Plenty of audio output, drives any speaker or phones

These little rigs are burning up the airwaves as young and old alike are rediscovering the fun in building their own equipment! Our detailed, step-by-step instruction manuals make building an enjoyable and rewarding experience. You're guided carefully to the completion of a unit that not only works, but will provide hours of operating pleasure. These trusty and proven Ramsey all mode mini rigs are routinely used worldwide by Hams of all ages. You 'll find you don't need high power - K71RK worked and QSL'd all states, plus global DX QSOs from Argentina to the former USSR—with only 2 mW! You don't need hundreds of watts, thousands of dollars or massive equipment; you'll find it's more fun with less! These little receivers are based upon the SA-602 that we read about in Ham magazines and handbooks. The receivers are true superheterodyne direct conversion - a simple design that does not require the use of fancy IFs, RF filters, or exotic mixers; in short, the ideal design for easy hobby building. Only recently have high performance ICs become available that enable such circuitry to be constructed. Beginners can easily build these receivers. And, experienced amateurs and QRP enthusiasts can use them as a reliable, economical, basic foundation for modifications. Our single PC board has plenty of room for lots of modifications and hook-ups - tinker to your heart's delight. Suggestions and technical info are included in every receiver manual. Isn't this what Ham radio is all about? Operates on 9 V battery (not included). Included case measures 5"W x 1½"H x 5¼"D".

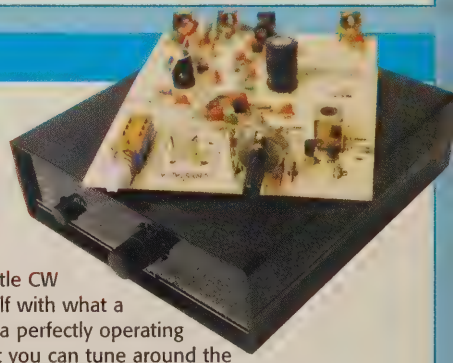
HR20C	**20 Meter Receiver Kit With Case**	**$39.95**
HR30C	**30 Meter Receiver Kit With Case**	**$39.95**
HR40C	**40 Meter Receiver Kit With Case**	**$39.95**

QRP Mini-Transmitters

KIT

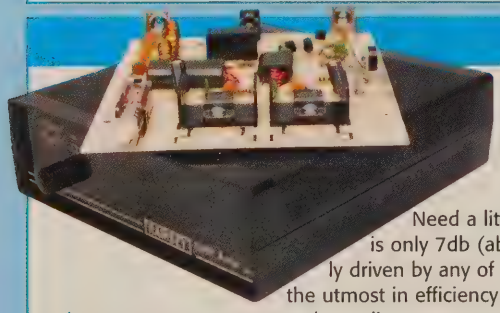
- Four transistor circuit, oscillator, RF amplifier chain, and clean keying stage
- RF output of approximately one watt (3/4 W for QRP20)
- Pi-network output for good matching and harmonic suppression
- Provision for two internal crystals (one crystal provided), front panel switching
- VCXO tuning, frequency can be tuned approximately 7 KHz around XTAL frequency

Work The World On A Watt!



These nifty little CW transmitters are practical and economical take-along rigs for trips, camping, teaching or just amazing yourself with what a watt will do! With exceptional manual of over 20 pages, the detailed step-by-step instructions guide you to a perfectly operating finished transmitter. The rigs use a standard crystal that is connected into a VCXO circuit - which means that you can tune around the crystal's frequency by up to 20 KHz - thus giving you stable crystal control while still being able to tune around! A front panel switch lets you choose between two crystals; we include one, you can add another of your choice. A built-in T-R switch allows break-in operation. Of course, these transmitters interface perfectly with our QRP Mini-rig receivers and our CMOS CW keyer! And for the real Ham, there's plenty of room inside the included case for your own circuit modifications and experiments. These little rigs are often the heart of many QRP operator's stations. Modify "till-the-cows-come-home," or just use 'em as they are - these little rigs pack a lot of performance into an economical package. Runs on 12 VDC at 200 mA.

QRP20C	**20 Meter Transmitter Kit, Includes 14.060 MHz Xtal And Case**	**$39.95**
QRP30C	**30 Meter Transmitter Kit, Includes 10.108 MHz Xtal And Case**	**$39.95**
QRP40C	**40 Meter Transmitter Kit, Includes 7.040 MHz Xtal And Case**	**$39.95**
AC125	**110VAC Power Adapter**	**$9.95**



KIT

QRP Linear Amplifiers

- Works great with Ramsey QRP rigs or any other 1-2 watt transmitter
- Built-in T/R relay automatically switches between receive and transmit
- Operates all modes; CW, SSB, or AM

Cut Through The QRM With 20 Watts!

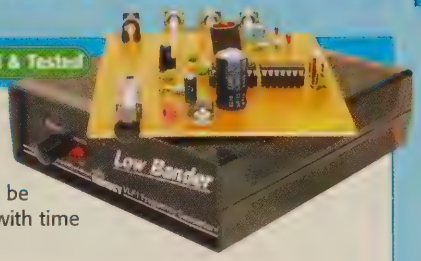
Need a little extra boost for your QRP rig? This nifty little amplifier may be all you need. Believe it or not 20 watts is only 7db (about one S unit!) less power than a full sized commercial transceiver. These compact amplifiers are easily driven by any of our QRP transmitters or any other unit in the ½ - 2 watt range. Advanced power MOSFETs are used for the utmost in efficiency and purity, while a multistage low pass filter is used to assure a clean signal output. Power required is only 12 VDC at 2 to 4 amps, depending upon power output. Complete step-by-step instructions are provided which make building the kit a breeze. The amplifier works well for all modes: CW, SSB and AM. Case included.

QAMP20C	**20 Meter QRP Amplifier Kit With Case**	**$49.95**
QAMP30C	**30 Meter QRP Amplifier Kit With Case**	**$49.95**
QAMP40C	**40 Meter QRP Amplifier Kit With Case**	**$49.95**

Low Bander Low Frequency SWL Converter

KIT

Wired & Tested



- ✔ Explore the world below 400KHz!
- ✔ Easy hook-up with built-in antenna switch
- ✔ Works with any short wave radio

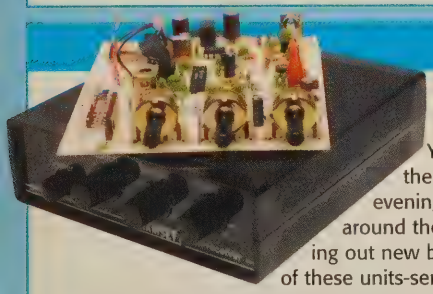
Tune In The Exotic Low Freq RF Band!

Everyone has a high performance general coverage SW radio, but who needs a converter for LF? YOU do! You'll be amazed; there are a ton of exciting signals down there with hundreds of beacons from around the world along with time and frequency standards from various governments.

There are lots of hobbyists running in the one watt license-free band and the FCC is even considering a Ham band with 200 watt power! Many newer SW receivers say they will receive down low, but check the specs - just because it tunes down to 100 KHz doesn't mean it can actually hear anything there! Most receiver front-ends optimized for HF don't work well at LF. We designed the lowbander to hear it all, a 7 pole low pass filter along with an overload resistant switching mixer squashes spurious birdies and annoying interference. Hook-up is a snap, with built-in antenna switching between regular and LF antennas. All signals are converted up to 4 MHz, so if you want to hear 136 KHz - just tune your rig to 4.136 MHz - it's that easy. We give you antenna hints as well as web links for info on the exciting world below 400 KHz! For a great finished looking converter, we include the custom matching case set. Runs on 12VDC. *(While we said low frequency, no, this won't pick up audio or even your dog whistle. . . you can only go so low!)*

VLF1C	**Low Frequency SWL Converter Kit With Case**	**$39.95**
VLF1WT	**Factory Assembled & Tested VLF1 With Case And Power Supply**	**$69.95**
AC125	**110VAC Power Adapter**	**$9.95**

Mini VHF Receiver



KIT

- ✔ Tunes any 5MHz portion of selected receiver band
- ✔ Excellent performance, less than 1µV sensitivity
- ✔ True Superhet Receiver with sharp ceramic IF filters
- ✔ Front panel volume, squelch, and tuning controls
- ✔ Great starter kits for novice Hams

Low Cost, Easy To Build!

You get a lot for your money with any one of these dual-conversion FM receivers. In just one evening of building fun you can be snooping around the band monitoring the local repeater, checking out new bands, or even eavesdropping in on the local police and businesses. There are no short cuts taken in the design of these units-sensitivity is equal to full size monitor receivers or scanners. Schools, scout troops, clubs and hobbyists use these receivers for teaching, monitoring, and just plain building enjoyment. Any one of these little receivers are ideal for easy chair listening, and with no big clunky box and wiring to aggravate the XYL! All four receivers can be tuned outside of the intended amateur bands. For example, the FR146 two meter receiver will tune any 5 MHz segment from 130 to 180 MHz. Choose your band and enjoy FM repeater and simplex monitoring on a budget! Help a newcomer discover the 220 MHz novice band. Listen in on exciting 10 Meter international FM action. Rediscover the fascination of 6 Meter sporadic E band openings and uncrowded new FM repeaters. For a professional finished look, our matching case and knob set is included. Kit includes detailed step-by-step manual that carefully guides you to a finished working radio. Runs on 9V Battery. Case measures 5"W x 1½"H x 5¼"D.

FR146C	**2 Meter Receiver Kit With Case**	**$44.95**
FR6C	**6 Meter Receiver Kit With Case**	**$44.95**
FR10C	**10 Meter Receiver Kit With Case**	**$44.95**
FR220C	**220 MHz Receiver Kit With Case**	**$44.95**

2-Meter Receiver Preamp

- ✔ 2 Meter Preamp with the sharpest filtering available
- ✔ Can be powered up the signal coax (9 to 15 VDC)
- ✔ Helical filter for fantastic intermod rejection

Here's the ideal preamp for repeaters, base stations, mobiles - anywhere a selective low noise signal boost is needed. Unlike other preamps the PR100 features extensive RF filtering to crush intermod before it reaches your radio. Two poles of sharp Helical filtering combined with a 3 pole L-C tank allow only signals of interest to reach your receiver. A low noise microwave bipolar transistor provides an excellent 1 dB noise figure while remaining ruggedly insensitive to static and strong signals. Preamp is easily configured to be powered via the coax (for mast mount applications) or powered through a separate power cable. Kit is designed to fit snugly into a 3" long piece of 1 ½" PVC pipe with end caps, making an ideal outdoor enclosure. Runs on 9 to 15 VDC. Size: 4"w x 7/8"h x 1 3/8"d.

KIT

PR100	**2M Preamp Kit**	**$34.95**

Low Cost Receiver Preamps

- ✔ Low noise (typically < 1 to 1.5 dB)
- ✔ High Q tuned circuits (very narrow band) prevent out-of-band signals from overloading front-end

Put some new 'ears' on your rig with one of these hot little preamp kits. Their high gain combined with low noise will improve most any receiver. Fully protected against overload and designed for low current and stable operation they employ high Q tuned circuits which restrict out-of-band signals which can cause intermod blanking and overload of your radio's front-end. Don't be misled by GaAs FET claims! The cheap dual-gate FETs (manufactured for TV tuner usage!) used by others just don't come close to the performance of these preamps designed with NEC microwave transistor devices. Gain is typically 16 to 20 dB and noise figure is 1 dB @ 2 Meters, 1.2 dB @ 220 MHz, and 1.4 dB @ 440 MHz. Compact design for easy installation into most any rig. Operates on 12 to 15 VDC . Size: 1" x 3/8" x 1 ½".

KIT

PR10	**2 Meter Preamp Kit**	**$14.95**
PR20	**220 MHz Preamp Kit**	**$14.95**
PR40	**440 MHz Preamp Kit**	**$14.95**

KIT Wired & Tested

Doppler Direction Finder

- ✔ Track down jammers and hidden transmitters with ease!
- ✔ Elegant and cost effective design thanks to WA2EBY! Featured in May/June 1999 QST Magazine
- ✔ Convenient LED 22.5 degree bearing indicator
- ✔ Adjustable damping rate, phase inversion, scan enable/disable
- ✔ Utilizes latest high speed CMOS technology for signal conditioning and audio processing!

Track Them Down... Quick!

Get in on the fun of radio direction finding (RDF) with this super kit ! The latest in affordable Doppler direction finding equipment available in a complete kit form ..this one even includes the receiving antenna assembly! A must for the "fox hunter" at an unheard of price! Radio direction finding is a fascinating hobby and is becoming more and more popular in today's portable world.

With the increasing number of intentional jammers and other unknown transmitters around, Doppler DF locators have become the rage with a display that gives you a direct bearing on the location of the transmitter. Pretty neat trick considering you don't need multiple separate receivers at different locations to triangulate on the mystery transmitter! The kit includes the Doppler Direction Finder display unit, and all the parts necessary to build your own four point, 5 piece magnetic antenna assembly for easy setup and use. Operates on 12VDC, and includes a matching 12VDC power plug for custom integration and connection into your vehicle or portable power supply. Easy to hook up to any FM receiver. Transmitter (the object of your DF'ing) need not be FM, it can be AM/FM or CW.

Requires only a connection to your receiver's speaker jack and radio's antenna. The whips can be cut and optimized for any frequency from 130-1000 MHz. An easy to build, reliable kit that compares most favorably to commercial units costing upwards of $1000.00! Comes complete with matching case, 12VDC plug, magnetic antenna kit with cables, and a comprehensive instruction manual. *(Sorry, the Dodge Stratus above isn't included, my daughter totaled it!)*

DDF1	**Doppler Direction Finder Kit, With Case, Power Cable, And Magnetic Antenna Kit**	**$169.95**
DDF1WT	**Factory Assembled & Tested DDF1 With Case, Power Cable, And Magnetic Antenna Kit**	**$269.95**

Foxhound Direction Finder

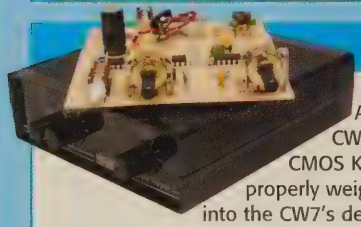
KIT

- ✔ Pin diode switching of antennas, coupled with filters, determine direction of source signal as indicated by a pair of LEDs
- ✔ Sensitive metering allows easy "zeroing-in" on transmitter!

Track Down Those Hidden Transmitters

The Foxhound connects to any radio through the speaker jack and antenna connector and will allow you to easily zero in on the exact direction of an unknown transmitter, be it aircraft, two-way radio, Ham or even TV. The Foxhound uses a pair of telescopic whip antennas which are manually turned (by you!) until the sensitive meter indicates the lowest reading. This direction finder uses the latest technology for trouble-free, solid operation. The antennas are alternately switched on and off using PIN diodes. The outputs are then passed thru a high-Q audio filter and synchronously detected for phase shift. A pair of LEDs tell you in which direction you should rotate the antennas- to the right or left. We provide the telescopic whip antennas and ask you to provide a two foot long "boom" on which to mount them. And, as an added feature, we've included an automatic T-R switch! The T-R switch is ideal for handie-talkie usage; if you wish to transmit with your radio - go ahead, the Foxhound will sense your transmitter power and automatically switch itself out of the circuit while you talk. Be the one with the answers, win those transmitter hunts, track down the jammers; you'll do it all with your Foxhound! Operates on internal 9 Volt battery or 12VDC, via a 2.1mm female power jack. Includes a custom case set for super-nice looking finished kit! *(No foxes were injured or harmed during DF1 development!)*

DF1C	**Foxhound Direction Finder Kit With Case**	**$74.95**
AC125	**110VAC Power Adapter**	**$9.95**



Easy-Key CW Keyer

- ✔ Works great on any rig

KIT

Add to your CW fun with our low cost CMOS Keyer Kit. Self completing dots and dashes with properly weighted spacing and timing are all programmed into the CW7's design. Built-in sidetone, adjustable pitch, front panel speed and volume controls. You need to supply an external set of paddles (detailed in manual). 9V battery operation.

CW7C	**CW Keyer Kit With Case**	**$34.95**

Code Practice Oscillator

- ✔ Learn the code, great starter kit

Learn CW, It's Fun!

KIT

This little code practice oscillator is easy to build, easy to use, and features an audio tone adjustment for your listening pleasure. Using the ever popular 555 timer chip and the straight key paddle you are in full control of the output tone length and pitch. Size 3 ½" x 1½" x 3/4". 9V battery not included.

CPO3	**Code Practice Oscillator Kit**	**$14.95**

Super-Pro Synthesized FM Stereo Radio Station

- ✔ Built-in mixer - 2 line inputs and one microphone input, line level monitor output
- ✔ Precision active low-pass "brick wall" audio filter
- ✔ Clean, filtered RF output suitable for RF amplification
- ✔ Frequency range 88.0 to 108.0 MHz, 100 KHz steps

KIT

Wired & Tested

Our FM100B is the updated version of a truly professional frequency synthesized radio transmitter station in one durable, handsome cabinet. It is used all over the world by serious hobbyists as well as churches, drive-in theaters, and schools. No one else offers all of these features at this price! The included frequency display and audio level meters assist in easy operation. The "B" version now includes some additional functionality including a line level monitor output, improved stereo separation, spectral purity, audio clarity, and adjustable RF Output.

Sound quality is impressive, and equal to or better than most commercial stations. Low pass input filtering plus peak limiters put maximum "punch" in your audio, and prevent overmodulation distortion. Churches, drive-ins, schools and colleges find the FM100B to be the answer to their transmitting needs... you will too. The kit includes a sharp looking metal cabinet, whip antenna, and built-in 110/220 volt AC power supply. An external antenna connection allows hook-up to high performance antennas like our vertical and colinear models on page 32. We also offer a high power export version of the FM100B that's fully assembled with one watt of RF power, for miles of program coverage. Many islands and villages use it as their local radio station! The export version can only be shipped outside the USA, or within the US if accompanied by a signed statement that the unit will be exported. One watt units at full power cannot be used with the telescoping whip antenna and MUST be utilized with an external antenna to maintain proper VSWR. *(Note: The end user is responsible for complying with all FCC rules & regulations within the US, or any regulations of their respective governing body).*

FM100B	**Super-Pro FM Stereo Radio Station Kit, 5uW to 25 mW Output**	**$269.95**
FM100BEX	**Super-Pro High Power (Export ONLY) Kit, 5uW to 1Watt Output**	**$349.95**
FM100BWT	**Factory Assembled & Tested FM100BEX, 5uW to 1 Watt Output**	**$429.95**

Our #1 Kit!

Professional 40 Watt FM Power Amplifier

- ✔ Frequency range 87.5 to 108 MHz
- ✔ Variable 2 to 40 watts output
- ✔ Selectable 2 watt or 5 watt drive
- ✔ Microprocessor controlled overdrive, VSWR, and over-temperature protection
- ✔ Harmonics meet or exceed FCC specifications for licensed transmitters!

Ultra-Reliable For Continuous Duty Operation!

Wired & Tested

SPECIFICATIONS	
RF Power Output:	2W - 40W, continuous duty
Input Power:	Selectable 2W or 5W
Frequency Range:	87.5 MHz - 108.1 MHz
VSWR Protection:	Automatic VSWR protection
Temp. Protection:	Automatic over-temp protection
Over-Drive Protection:	Automatic over-drive protection
Display:	Multifunction LED, Power Output, VSWR, Input Power, Temperature, Fault
Controls:	Power On/Off, Output Power Adjust, Display Select
Input Connection:	BNC
Output Connection:	Type-N
Cooling:	Forced air
Power:	100 to 240 VAC, 2.5 amps, 50/60 Hz
Case:	9.55"W x 3.65"H x 12.54"D
Weight:	8 Lbs

You asked for a professional quality FM power amplifier with 30-40 watts output that has variable drive capabilities. You asked for continuous duty operation, with proper automatic protection circuits. And finally, you asked for totally variable output power in line with your FCC, DOC, or ERP requirements. Consider it done with the PA100 from Ramsey, the name known for professional quality FM transmitter products.

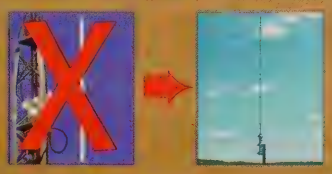
If you are one of the thousands of export users of our famous FM100EX and FM100WT Super Pro Stations (or new B series above) you'll love the PA100. With the mere one watt drive from these units you can boost your output up to 30 watts! And this is continuously variable throughout the full range! If you are currently using another FM transmitter that provides more than one watt output, no problem! The drive input is selectable for two or five watts to achieve the full rated output!

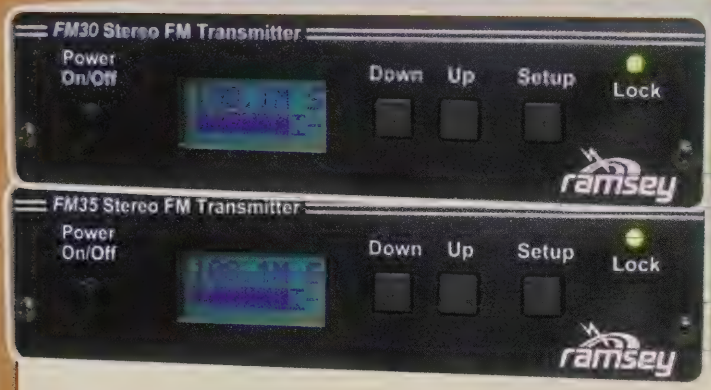
Features a multifunction LED display to show you output power, input drive, VSWR, temperature and fault conditions. The built-in microprocessor provides AUTOMATIC protection for VSWR, over-drive, and over-temperature. The built-in fan provides a cool 24/7 continuous duty cycle to keep your station on the air! Using our FMA200 antenna? Order one of our convenient preassembled low loss cable kits on page 32 to get you on the air quick! *(Note: The end user is responsible for complying with all FCC rules & regulations within the US, or any regulations of their respective governing body).*

PA100	**40 Watt FM Power Amplifier, Factory Assembled & Tested**	**$599.95**

DON'T FORGET YOUR POWER OUTPUT!

If you've been using an FM100WT with our TM100 antenna, and you boost the output with one of our PA100's, you can no longer use the TM100 antenna! Check out the FMA200 on Page 32





NEW!

Digital FM Stereo Transmitters

- ✔ PLL synthesized for drift free operation
- ✔ Front panel digital control and display of all settings and parameters!
- ✔ Professional metal case for noise-free operation
- ✔ EMI filtering on audio and power inputs
- ✔ Super audio quality, rivals commercial broadcasts
- ✔ Available in kit or factory assembled versions

KIT

Wired & Tested

Brand New For 2005!
All The Features You Asked For...
PLUS A WHOLE LOT MORE!

THE LEGACY CONTINUES!

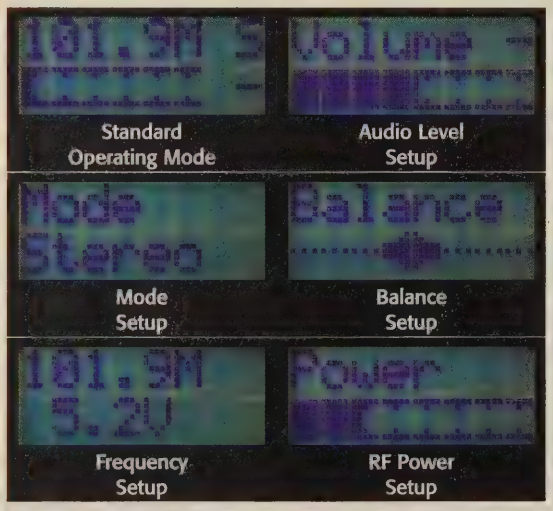
For nearly a decade we have been the leader in hobbyist FM radio transmitters. First we came out with our low cost FM10, the tunable FM transmitter that has set records as the most popular school, scouting, and first time hobbyist kit. Then we introduced the world famous FM25 series of FM transmitters. We took the basic concept of the tunable FM10, made it synthesized for rock solid and stable operation and gave it the features and performance that made it THE LEADER in low cost FM stereo transmitters. From there we introduced our FM100 series Super Pro FM Stereo Radio Station (page 27). We took the exceptional circuitry of the FM25 and built a stand-alone "radio station" around it, complete with microphone and line level audio mixers, digital control and display of operating frequency, higher RF power output options, and put it all in a professional case. To date, the FM100 series continue to be our #1 selling products! See the front cover of this catalog!

SPECIFICATIONS	
Frequency Range:	87.9-108.1 MHz
Power Output:	0-25mW, BNC (FM30) 0-1.0W, BNC (FM35WT)
Audio Inputs:	Line level left and right RCA connectors
Controls:	Power on/off
Digital Controls:	Frequency, 256 step audio level, 256 step RF output level, 256 step audio balance, mono/stereo
Setup Digital Display:	Setup frequency, setup audio levels, setup audio balance, setup RF output level, setup mono/stereo, save settings
Normal Digital Display:	Frequency, RF power output, quality of signal
VCO Lock Display:	Front panel LED
Power Requirement:	13.8 to 16VDC, 500mA max
Dimensions:	5.55"W x 6.45"D x 1.5" H

NOW FOR 2005...

Introducing our brand new FM30 series transmitters! How could we make history better? First, we listened to thousands of our customers that loved the stability of the PLL synthesized FM25 series but wanted easy to change front panel control of the operating frequency and wanted to know what frequency they were transmitting on. They also wanted the capability of controlling the audio levels at the transmitter rather than changing the input levels. We thought those were very legitimate requests, and our response was to move up to the FM100 series. "But I don't need an audio mixer, I don't need all that fancy stuff built-in, I just need a small transmitter I can afford"! Here you go, designed from the ground up...the FM30 series!

Our RF engineers took it as a challenge and designed not one, but TWO transmitters! The FM30 is designed using through-hole technology and components and is available only as a do-it-yourself kit, with a 25mW output very similar to our FM25 series. Then they redesigned their brand-new design using surface mount technology (SMT) for a very special factory assembled and tested FM35WT version, with 1W output for our export market!



Both are designed around an RF tight vinyl clad metal enclosure for noise free and interference free operation. All settings are done without taking the cover off! Enter the setup mode from the front panel and step through the menu to make all of your adjustments. A two line LCD display shows you all the settings! In addition to the LCD display, a front panel LED indicates PLL lock so you know you are transmitting. Besides frequency selection, front panel control and display gives you 256 steps of audio volume (left and right combined) as well as RF power output power. A separate balance setting compensates for left/right differences in audio level. In addition to settings, the LCD display shows you "Quality of Signal" to help you set your levels for optimum sound quality. And of course, all settings are stored in the non-volatile memory for future use!

The design includes EMI filters on line level audio and power inputs, and a state of the art microstrip PCB inductor to reduce microphonics for the ultimate in alignment free operation. RF output is through a professional well shielded rear panel BNC connector for a perfect antenna match. Standard RCA connectors are used for left and right line level audio inputs.

Both the FM30 and FM35WT operate on 13.8 to 16VDC and include a 15VDC plug in power supply. The stylish metal case measures 5.55"W x 6.45"D x 1.5"H and is a perfect match with your computer to broadcast your music files throughout your house. If you're looking for a super performer without all the features of our FM100 series transmitters, the new FM30 is for you! The FM35WT can only be shipped outside the USA, or within the US if accompanied by a signed statement that the unit will be exported. *(Note: The end user is responsible for complying with all FCC rules & regulations within the US, or any regulations of their respective governing body).*

FM30	**Digital Synthesized FM Stereo Transmitter Kit, 0-25mW RF Output**	**$199.95**
FM35WT	**Digital Synthesized FM Stereo Transmitter, Factory Assembled & Tested, 1W Export Only**	**$299.95**

Synthesized FM Stereo Transmitter

KIT

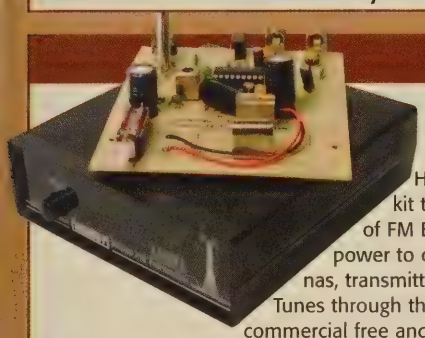
- ✔ Synthesized 88 to 108 MHz for no frequency drift!
- ✔ New design features 'Line In' and 'Loop Out' 1/8" Stereo jacks!
- ✔ 'F' style RF output external antenna connector

New Design Includes SMT!

Need professional quality features but can't justify the cost of a commercial FM exciter? The FM25B is the answer! A cut above the rest, the FM25B features a PIC microprocessor for easy frequency programming without the need for look-up tables or complicated formulas! The transmit frequency is easily set using DIP switches, no need for tuning coils or "tweaking" to work with today's 'digital' receivers. Frequency drift is a thing of the past with PLL control making your signal rock solid all the time - just like commercial stations. The FM25B's real claim to fame however is the use of the latest cutting edge stereo generator to hit the market. The audio quality is excellent with amazingly good stereo separation to keep even the pickiest audiophiles happy! Connections couldn't be any easier; use the provided cable to interface with the line output of any CD player, tape deck, computer, or mike mixer. Just plug it in and you're on the air! Kit comes complete with case set, whip antenna, 120 VAC power adapter, 1/8" Stereo to RCA patch cable, and easy assembly instructions - you'll be on the air in just an evening! Case size 5"w x 1½"h x 5¼"d.

FM25B	**Professional Synthesized FM Stereo Transmitter Kit, adjustable 5 uW to 25 mW Output**	**$139.95**

Tunable FM Stereo Transmitter



KIT

Learn FM Basics!

- ✔ Tunable anywhere in standard FM band... 88 to 108 MHz
- ✔ Operates on 5 to 15 VDC
- ✔ Settable pre-emphasis 50 or 75 µSec for use anywhere in the world
- ✔ Easy to build, low cost transmitter, includes matching case set!

Here is a great entry-level kit that will teach the basics of FM Broadcast Transmission while finding many uses around the home or dorm room. The FM10C has plenty of power to cover your home, back yard, or city block. Our manual goes into great detail outlining all the aspects of antennas, transmitting range and the FCC rules and regulations. You'll be amazed at the exceptional audio quality of the FM10C. Tunes through the entire 88-108MHz band in three separate ranges with a tuned LC circuit. Re-broadcast your favorite music commercial free and with the dynamic range the musician intended, without all that nasty compression the big boys use to make their station sound louder than the competition. Compression produces a noticeably muddier and less dynamic sound. The unit runs on internal 9V battery, external power from 5 to 15 VDC, or an optional 120 VAC adapter is also available. Includes the matching case & knob set for a professional finished look. Case size 5"W x 1½"H x 5¼"D

FM10C	**FM Stereo Transmitter Kit With Case**	**$44.95**
FMAC	**110 VAC Power Supply for FM10A**	**$9.95**

Professional Synthesized AM Transmitter

KIT

- ✔ Fully synthesized, no frequency drift!
- ✔ Ideal for schools
- ✔ Microprocessor controlled
- ✔ Strappable for higher power output where regulations permit
- ✔ Includes AC power adapter and case set

Be As Stable As A Rock!

Run your own radio station! The AM25 operates anywhere within the standard AM broadcast band, and is easily set to any clear channel in your area. The design is similar to that of a commercial radio transmitter, so you'll learn how the "big guys" operate. It is widely used by schools - standard output is 100 mW, with range up to ¼ mile, but is jumper settable for higher output where regulations allow. Broadcast frequency is easily set with dip-switches and is stable without drifting. The transmitter accepts line level input from CD players, tape decks, etc. Includes case & knob set & AC power supply.

AM25	**Professional AM Synthesized AM Transmitter Kit, Case, and AC Power Supply**	**$99.95**

Tunable AM Radio Transmitter

KIT

#1 Scouting Project For Years

- ✔ Tunes entire 550 to 1600 KHz AM band
- ✔ Operates on 9 to 12 VDC, includes case set
- ✔ Standard line level input with RCA phono jack
- ✔ 100 mW output. Range up to ¼ mile under optimum conditions

The AM1 is a great first kit, and a fine low power AM broadcaster for the hobbyist on a budget. It's a great way to learn the basics of AM broadcast technology, not to mention basic soldering and component identification (if you're a beginner!) The transmitter can be tuned to broadcast anywhere in the AM band (550 to 1600 kHz). Setting frequency is simple - tune a nearby AM radio to the desired frequency, then adjust the AM1 coil to match the radio. With 100 mW of output power, range can be up to ¼ mile. The AM1 has been used by Scout camps, churches, schools, and other organizations to provide easy and low cost communications.

AM1C	**AM Radio Transmitter Kit With Case**	**$34.95**
AC125	**110VAC Power Adapter**	**$9.95**

Wired & Tested KIT

Phone Patch Mixer

- ✔ Send telephone call audio over-the-air!
- ✔ Stereo line/microphone/phone line mixer!
- ✔ Automatic gain, automatic noise gating, variable compression!

Mix Your Phone Line, Microphone, And Music Source!

Ever wish you could broadcast on-the-air telephone calls like the big guys do? Due to popular demand, and probably the most requested kit idea ever received, we came up with the PPM3 Phone Patch Mixer!

This is a perfect match to any of our AM or FM broadcasters! Sure it's easy to plug a music source into any of them, but when you want to add a microphone (after all, you ARE the Disc Jockey of your station!) or if you want to put incoming phone calls on-the-air and properly mix them together, it becomes difficult! Not anymore with the PPM3. All three audio inputs can be easily mixed together and put onto the Line output for feeding into any of our transmitter kits!

SPECIFICATIONS	
Inputs:	Telephone line, RJ11
	Microphone, ¼" phone
	Stereo line level, (2) RCA phono
Outputs:	Line level out, (2) RCA phono
	Telephone line, RJ11
Controls:	Phone line volume
	Microphone volume
	Line volume
	Phone line mute
	Microphone mute
	Power on/off
Indicators:	Power on LED
	Microphone on LED
	Line output peak LED
Power requirement:	9-15VDC 2.1mm adapter plug
Case/knobs:	Included, 9.55"W x 3.65"H x 12.54"D

Simply plug your microphone, phone line, phone handset, and stereo line level program source into the PPM3. Connect the output to your AM or FM broadcaster's line level input and you're all set! Separate independent automatic noise gating and automatic variable gain and compression circuits are used for both the telephone line audio and microphone inputs to assure a great sounding line output! The stereo line level mixer features mono injection of phone line and microphone audio for equal balance. Powered by 9-15VDC. Now when those people call complaining about YOU, put THEM on-the-air! *(But the way things are going lately, you better have a delay installed!)*

PPM3C	**Phone Line Interface/Mixer Kit, With Case**	**$69.95**
PPM3WT	**Factory Assembled & Tested PPM3C With Case And Power Supply**	**$99.95**
AC125	**110VAC Power Adapter**	**$9.95**

The Bullshooter-II Digital Voice Storage

KIT Wired & Tested

- ✔ Multiple message storage and selection
- ✔ Full function controls with 7 segment display!
- ✔ Variable output levels to match your equipment!
- ✔ Great for telephone hold announcements, broadcast announcements, and much more!
- ✔ Attractive matching case set included

Feature Packed Digital Storage!

Our BS1 Bullshooter digital voice storage recorder has been very popular to replace tape for basic voice announcements. As the applications have increased, so has the need for additional features. *Consider it done*...with the new BS2 Bullshooter II!

The BS2 provides up to 4 minutes of digital voice storage. That can be broken down in a maximum of 9 separate stored messages. The message number is displayed on the 7 segment LED front panel display! Recording/playing/stopping is similar to a standard recorder. You can start, stop/pause your message during both record and playback! Now you can have separate and distinctive messages to fit various applications...or even different sponsors!

The BS2 has a built-in, highly sensitive electret condenser microphone for recording your voice messages. However, you can also plug in an external microphone and even an external line level input for that professional studio sounding recording. External inputs also feature variable level controls to optimize your recording!

Playback-wise, the BS2 features adjustable line level outputs (two mono outputs for stereo inputs) to properly feed any application! This is perfect for telephone system announcements on hold (MOH source), radio broadcasters, transmitters, and audio/visual displays. You can also directly drive a speaker with the built-in amplified speaker output and monitor the levels with the built-in headphone jack. Whatever your application is, the new BS2 has you covered! Runs on 12-15VDC. *(Gee, when you call us, wonder where the voice announcements on hold are coming from?)*

BS2C	**Bullshooter-II, Multi-Message Digital Voice Recorder Kit With Case Set**	**$69.95**
AC125	**110VAC Power Adapter**	**$9.95**
BS2WT	**Factory Assembled & Tested BS2 with Case Set and Power Supply**	**$99.95**

www.ramseykits.com
Not just a web site, but your resource center!

- ✔ FCC Information
- ✔ License Information
- ✔ How To Set Up Your Station
- ✔ And A Whole Lot More!

AM-FM BROADCASTERS

Stereo Transmitter Companion

KIT — Wired & Tested

- ✔ Make your radio station sound like the pros!
- ✔ Limiter/processor for that high density modulation 'punch'
- ✔ 3 band audio processor - separate controls for Bass, Presence, and Brilliance

Distortion Free Audio Processing!

Your station's image and degree of professionalism is defined by its sound quality. While we can't make your jokes or witty announcing skills any better we can at least make the technical quality the best it can be! The STC1 connects easily between your CD player, mike mixer, or tape deck and the Radio Transmitter. If you like programming Rock music, crank up the Bass and Brilliance controls for some "sock-em" sound, Classical and vocal tunes come alive with a sweetening of the Presence control, monologues, commentaries and talk radio are benefited by Bass and Presence. Set the levels so that the Peak LED flickers a bit and you're assured of perfect modulation without splatter or distortion! Low cost CD players that have poor filtering on the output are really cleaned up by the switched-capacitor low pass filtering in the STC1. Higher order harmonics and clock feed-through that causes annoying heterodynes and whooshing noises disappear. Operates on 9 to 15 volts DC. Includes the matching case & knob set for a finished look!

STC1C	**Stereo Transmitter Companion Kit With Case**	**$64.95**
STC1WT	**Factory Assembled and Tested STC1C With Case And Power Supply**	**$119.95**
AC125	**110VAC Power Adapter**	**$9.95**

KIT — Wired & Tested

FM Low Pass Filter

"Clean Up" Your FM Broadcasts!

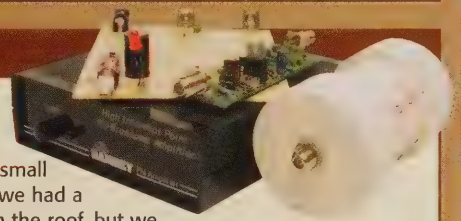
The FM Low Pass Filter kit came about while designing the PX1, Professional FM Broadcaster. The FCC Ruling 99–25 created a class of radio stations designed to serve localized communities by authorizing new classes of non-commercial, low power FM radio services (LPFM). In order to meet the stringent guidelines of the FCC, the PX1 underwent months of design sessions and many hours of painstaking tests. One of the secrets to its clean output is the FMLP1. If you own one of those spectrally dirty "import" exciters you'll definitely want to add the FMLP1 to clean up the output and properly match your power amplifier. Maximum input power is 50 watts. The kit utilizes surface mount chip caps, so you'll need ultra fine solder and a magnifying lamp.

FMLP1	**FM Low Pass Filter Kit**	**$29.95**
FMLP1WT	**FM Low Pass Filter, Factory Assembled & Tested**	**$49.95**

High Intercept Point FM Broadcast Amplifier

KIT

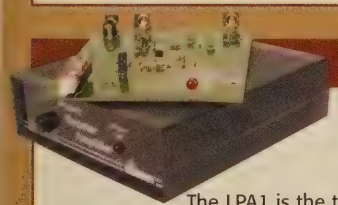
- ✔ Virtually overload proof
- ✔ Mast mount for best signal to noise ratio and performance
- ✔ Also works great for low power FM transmitters
- ✔ Put your power at the antenna not in the feedline
- ✔ Very well filtered with 5 sections of low pass filtering



Amplify BEFORE The Line Loss!

We developed this unit to try and receive a small college station about 35 miles away. Sure, we had a pretty good omni directional FM antenna on the roof, but we also had a big 50KW local AM station about 3 miles away! Any preamp we tried simply overloaded and replicated the strong station all over the band. Our solution was to take our popular broadband LPA1 one watt (!!) amplifier, add lots of low pass filtering and selectivity for the FM band, and put it in a nice weatherproof housing. To make things even easier, we added a power insertion box to feed the DC power up the same coax as the signal! Wow, did it do the job! Then, as an experiment, we tried using it to boost one of our FM transmitters! We couldn't believe the increase in transmission range, and the lowpass filtering made us feel pretty good about not futzing up anyone else's reception! Naturally, this is a no-no in the USA, but great for the export markets. Includes the outdoor PVC enclosure and the matching black case & knob set. Discover the first rule of amplifiers...do it BEFORE the noise, with the FMBA1C!

FMBA1C	**High Intercept Point FM Amplifier Kit With Case**	**$74.95**
AC125	**110VAC Power Adapter**	**$9.95**



KIT — Wired & Tested

RF Linear Power Amplifier

- ✔ Up to one watt output!
- ✔ 300KHz to 1000 MHz
- ✔ Runs on 12-15 VDC

Our Famous Broadband Amplifier!

The LPA1 is the ticket for boosting power up to 1 watt over a frequency range of 300 KHz to over 1000 MHz! Although intended for use as a lab amplifier, many users in foreign countries use the LPA1 to boost their Ramsey FM stereo transmitters to a watt of power capable of providing radio service through an entire town. Power required is 12 to 15 volts DC at 250mA via 2.1mm male power jack. Gain of 38dB at 10 MHz, 10 dB at 1000 MHz. Includes the custom matching case & knob set for a neat, professionally finished look. Case size 5"W x 1½"H x 5¼"D.

LPA1C	**RF Linear Power Amplifier Kit With Case**	**$54.95**
LPA1WT	**Factory Assembled & Tested LPA1 With Case And Power Supply**	**$119.95**
AC125	**110VAC Power Adapter**	**$9.95**

FM Broadcast Antennas

The Secret To Maximum Performance, And Great Range!

WHAT'S MORE IMPORTANT THAN YOUR ANTENNA? Antenna height and antenna match are the two easiest things you can do to increase your reception range. The old adage, "If you want more signal, put your money in an antenna rather than power" is certainly true. We feature quite a selection of top quality antennas to fill the bill for any enthusiast's needs - from the hobbyist to the commercial broadcaster serving thousands.

"The 3 most important factors in your broadcast system: Antenna, Antenna, and Antenna!"

The most efficient...and least expensive way to increase your range and signal quality!

For complete specs, visit us at www.ramseykits.com

KIT

Tru-Match FM Antenna

- ✔ Fully weatherproof - rugged PVC construction
- ✔ Matches 50 or 75 ohm systems
- ✔ Tunable for perfect match over the entire 88 to 108 MHz FM band

Rugged PVC Construction... Keeps The Weather Out!

We've been besieged with calls asking us where to get a good quality FM Broadcast antenna. Remember, matching your antenna to your transmitter is the single most important link in your transmitter setup - and a good antenna and match are the secret to getting maximum range.

When we say "match" we mean electrical impedance match... if the proper impedances are not maintained between transmitter and antenna, power is reflected away from the antenna and back into the transmitter! This can cause the final amplifier stage to be damaged, not to mention spurious signals and lousy range. Buy this kit and get the most from your FM Broadcaster!

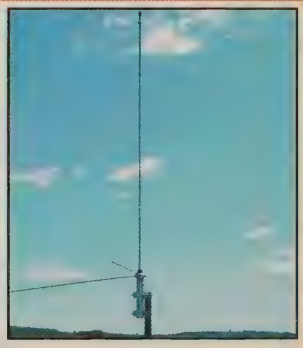
TM100	**FM Broadcast Low Power Antenna Kit (25 W Max)**	**$69.95**

5/8 Wave Colinear Vertical FM Antenna

KIT

- ✔ 5/8 wave for excellent gain and maximum range
- ✔ Field adjustable for a perfect match
- ✔ 3.4 dB gain effectively doubles your power!

Precision Tune To Your Exact Frequency For A Perfect VSWR!

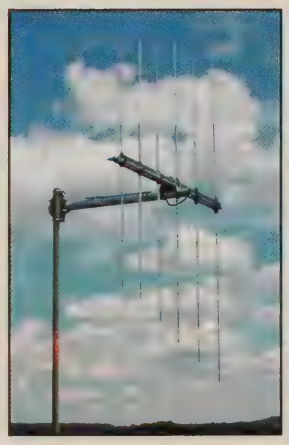


This is probably the most popular antenna we sell. Why? Let's start with the proven omnidirectional ground plane design, clean rugged construction, and how about easy mounting? The 5/8 wave design keeps your signal low to the horizon and not uselessly radiating up into space - great if your listeners are on the space shuttle, but the pits for the folks out at the edge of town! Imagine a donut shaped pattern of signal radiating from your antenna. For the most range out to the horizon, we need to "squish" that pattern flatter to squeeze more signal out to the horizon - and that's what this antenna does. Super easy to assemble and mounts to any common antenna mast. Has the common SO-239 style connector available anywhere and looks that just can't be beat. Try one and see if you don't agree that it's one heck of an antenna for the money! Height: 7' 7" 200 watt power rating.

FMA200	**5/8 Wave Colinear Antenna, 200W Max**	**$129.95**
FMC50	**50' Low Loss LMR400 Coax, PL259/Type-N Connectors Preassembled**	**$125.00**
FMC100	**100' Low Loss LMR400 Coax, PL259/Type-N Connectors Preassembled**	**$200.00**

KIT

Log Periodic Directional FM Antenna

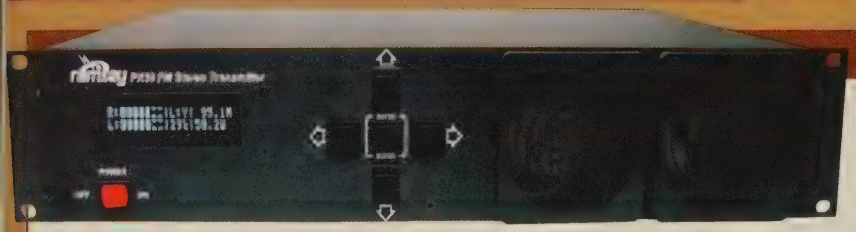


- ✔ Horizontal or vertical polarization
- ✔ Quadruples your transmit power!
- ✔ Directional pattern ideal for putting signal where you want it!
- ✔ 2 versions: semi-pro and heavy duty professional grade
- ✔ All elements at DC ground for excellent lightning protection
- ✔ Greater than 7 dB gain and 15 dB front to back ratio!

Professional Quality, Log Periodic Design!

We developed this antenna for those applications where you don't need to provide omnidirectional coverage. Where, you might ask? When you are on the edge of town and you want to concentrate your signal into the most populated area, why waste signal on the outskirts? Your signal is directed into the forward path with a multiplying effect of over 4 times while the signal coming off the back is reduced by over 30 times! The log-periodic design is wideband over the entire FM band meaning that you don't have to retune the antenna when you change frequencies. Also, the antenna is designed to be at DC ground which means a lot when you're in a thunderstorm prone area! Two versions are available to satisfy the semi-commercial operator and the full-fledged professional. Professional version uses solid aluminum elements and booms while the semi-pro uses hollow elements and extruded boom. Longest element 71" boom 45". Includes mounting brackets for horizontal or vertical use.

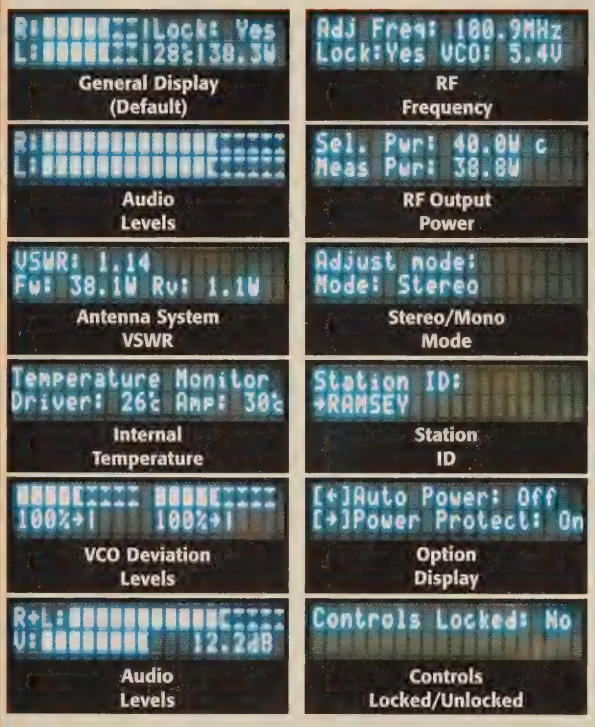
FMA300	**Log Periodic Directional Antenna, 300W Max**	**$379.95**
FMA400	**Heavy Duty Log Periodic Antenna, 1000W Max**	**$429.95**



50W LPFM Stereo Transmitter

- ✔ 50W RF output, continuous duty
- ✔ FCC Certified under parts 2, 73, and 74
- ✔ Automatic monitoring
- ✔ Automatic VSWR protection
- ✔ Automatic temperature protection
- ✔ Automatic battery backup
- ✔ Digital display of all paremeters

Stay On-The-Air With The PX50!



We asked LPFM licensees and users what they really wanted and needed in an FM stereo transmitter. We listened to a lot of current customers already using our very popular PX1 transmitter about features they would like. And we even listened to people using competitive equipment telling us what they really wanted!

What did we hear? You wanted an ultra-reliable transmitter that had automatic protection circuits that would keep you on the air, rather than shut you down. You asked for constant diagnostics on all critical circuits and functions. You wanted to use it anywhere in the world, regardless of input voltage or frequency plan. You wanted to have automatic battery backup to eliminate costly standby generators. You asked for more power than 35 watts but wanted it to run extremely cool while remaining extremely quiet. You wanted full digital display of all functions, parameters, settings and alarms.

And because of the confusion with the FCC equipment requirements you wanted an *FCC CERTIFIED* transmitter, not just a verified transmitter. You told us what you wanted...*CONSIDER IT DONE!* The PX50 Professional LPFM transmitter, designed specifically to *YOUR* specs!

Operation of the PX50 is simple and intuitive via the front panel navigation switch matrix. All functions, controls, and status are displayed on the 2 line by 20 character vacuum fluorescent display. Simple navigational controls and displays are provided for:

Installation of the PX50 is a breeze. A standard Type-N connection is provided for RF Output. Balanced (XLR) left and right audio inputs are provided to properly interface with any audio source you have. In addition, BNC SCA/Digital/RDS inputs are provided along with a quick disconnect connector for a 12 VDC standby/back-up power input. In short, connect your audio sources and antenna, power it up, set frequency and power level via the front panel navigation switch matrix, and you're on the air! It doesn't get any simpler!

SPECIFICATIONS

Frequency Range:	87.5 to 108.1 MHz
Primary Power Input:	85-264 VAC, 47-63 Hz; 120-370 VDC
Backup Power Input:	12-14 VDC
Broadcast Modes:	Stereo/Mono + SCA and Digital RDS Inputs.
Bandwidth:	±75 kHz when properly adjusted, auto adjust feature prevents overmodulation.
Separation:	Better than 50 dB (typical 60–70 dB)
Crosstalk:	Better than 50 dB.
Asynchronous:	Better than 60 dB.
THD:	Better than 0.3% with processing.
Audio Inputs:	Standard Balanced Inputs +4 dBu/1.228V rms/3.47 V p-p; -10 to +10 dBm range.
Audio Input Impedance:	22K Ohms
SCA and Digital Inputs:	BNC (50 Ohms)
RF Output:	50W Continuous into a 50 ohm load. Fully adjustable from 1 watt to full power.
Harmonic Suppression:	Better than -81 dBc
Display:	2 lines x 20 characters vacuum fluorescent display.
Controls:	5 navigation controls (Up, Down, Left, Right, Enter)
Cooling:	High CFM Fan, dual filtered front intake, rear exhaust.
Over-Power Protection:	Continuously checks for proper power output to within 5%.
VSWR Protection:	Continuous VSWR monitoring, controlled via Power Reduction On Error and Power Restoration Timer settings.
Over-Temperature Protection:	Auto over-temperature control, 70°C max. fixed, controlled via Power Reduction On Error and Power Restoration Timer settings.
Auto Power Reduction On Error:	Automatically reduces power output to 85%, 75%, 50%, 25% or full disable of set power level.
Auto Power Restoration Timer:	Sets the time interval for automatic error checking to clear reduced power modes and to restore full set power level.
Overmodulation Protection:	Auto control of audio modulation levels, on/off.
Audio Frequency Range:	20 Hz to 16 kHz ±1 dB. Steep "brick wall" 16 kHz low phase shift, low pass filter, down 68 dB @ 19 kHz and above.
Adjustments:	Audio input levels, Modulation Level, Power Level, Frequency (in 100 kHz steps), Stereo/Mono mode, Auto Adjust Modulation mode (On/Off)
Regulatory Approval:	Meets or exceeds FCC 47CFR Parts 15.107(b), 15.109(b); FCC CERTIFIED FCC 47CFR Parts 2, 73, and 74 (ID: PF3PX50)
Dimensions:	Standard 2-unit rack-mount case, 19" wide, 14.25" deep, 3.5" high.
	(Note: The end user is responsible for complying with all FCC rules & regulations within the US, or any regulations of their respective governing body)

PX50 **Professional 50W LPFM Stereo Transmitter** **$1995.00**

50W LPFM Complete Station In-A-Box

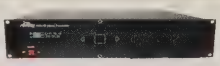
- ✔ 50W RF output continuous duty transmitter
- ✔ FCC Certified under parts 2, 73, and 74
- ✔ Integrated professional CD player
- ✔ Integrated professional cassette player
- ✔ Integrated audio mixer, mic, cables
- ✔ Omnidirectional antenna & coax
- ✔ Installed & prewired in a high impact road case!

Yes, We Said Station-In-A-Box!

One of the most requested FM broadcast products over the past year has been a "radio station in a box". At first we laughed. What did they mean... in a box? Then as the requests came pouring in, we found out! Overseas customers, as well as some of the new LPFM licensees have a need to quickly "get on the air" at temporary locations or in the interim to their installed studio/transmitter setup. A number of overseas customers also had to originate short term programming from various remote origination sites for disaster preparedness broadcasts! Well, here you go... a radio station in a box!

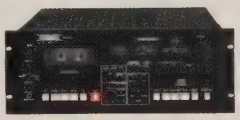
First we took our state of the art PX50 FM Stereo Transmitter and installed it in an impact resistant, rack mount travel case. Then we added the Superscope PAC750 integrated mixer/cassette deck/CD deck. We prewired them, then added a professional microphone and some cables. Finally, we included our 3.4 dB gain omnidirectional FM Broadcast antenna with 100 feet of matching low loss coaxial cable. There you go, a complete radio station, ready to plug in, and be on the air!

Just imagine: Show up, open up the case, plug in the AC power, temporarily mount the antenna, connect the coax, and you're all set! The applications are endless! From live remotes to station backup transmitters, our "Station In A Box" is your solution! *(Note: The end user is responsible for complying with all FCC rules & regulations within the US, or any regulations of their respective governing body).*



PX50 FM STEREO TRANSMITTER

Complete 50 Watt Synthesized FM Stereo transmitter. See page 33 for full details and specifications.



PAC750 INTEGRATED AUDIO SYSTEM

A complete, integrated, professional audio system. Includes an input audio mixer, cassette deck, CD player, with full audio and cueing controls. For complete specifications, visit www.ramseyelectronics.com.

FMA200 OMNIDIRECTIONAL VERTICAL ANTENNA

This 5/8 Wave omnidirectional antenna gives you 3.4 dB gain over a unity gain antenna. That's more than twice the effective radiated power. That will give you the maximum punch from your temporary location. Quick, on-the-spot assembly specifically for your operating frequency. Easy to mount on any mast, tower, or building. Some customers have even mounted them on the roof of their van, and have operated the station from inside the van!

We include 100 feet of low loss LMR-400 coaxial cable, with connectors pre-installed to get you on the air quick. For complete details on this and other FM broadcast antennas visit www.ramseyelectronics.com.

PROFESSIONAL MICROPHONE, STAND, AND CABLES

Professional handheld dynamic microphone, 25' professional XLR microphone cable, and a matching desk stand.

ALL INSTALLED AND PREWIRED IN A HIGH IMPACT RACK MOUNTED ROAD CASE!!!

PXB50 **Professional 50W LPFM Stereo Transmitter In-A-Box** **$3995.00**

Audio/RF DDS Signal Generator

NEW!

- ✔ DDS and SMT technology!
- ✔ Frequency range 0 Hz to 5 MHz with 0.1Hz resolution!
- ✔ 0 to 10V peak to peak output level
- ✔ Sine, Square, or Triangle waveform output!
- ✔ Non-volatile memory
- ✔ Factory assembled and tested

Wired & Tested

DC to 5 MHz... In 0.1 Hz Steps!

Thousands of our SG550 signal generators found homes on both hobbyist and professional benches around the world. It covered 1Hz to 50KHz with the stability, accuracy, and price that everyone loved. Now we are proud to announce the next generation, the SG560 Signal Generator!

To begin with we increased the frequency range all the way up to 5MHz and all the way down to 0Hz (yes, we mean zero...or DC!) continuously in 0.1Hz steps across the entire range!

Next we increased the output level to go up to 10V peak to peak in sine wave, square wave, or triangle wave forms. You can also provide a DC offset to the output allowing you to create a wide variety of signals for testing and experimenting. Recreate TTL, 4000 series logic levels, low voltage logic levels, AC waveforms with a DC component, or just plain AC signals.

The SG560 contains a 10 bit DDS and filtering for a low noise, accurate low distortion output. The output stage utilizes the latest technology in digital modems and high power, high bandwidth DSL modems and is capable of a direct output of 2.5W! You can even generate carrier signals in the AM band for testing AM receivers and circuits.

SPECIFICATIONS

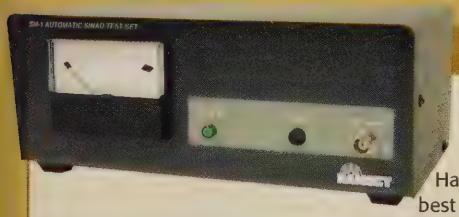
Frequency Range:	0.0Hz to 5 MHz
Frequency Resolution:	0.1 Hz
Stability:	±15 ppm
Output Amplitude:	0 to 10 Vp-p
Amplitude Resolution:	10 mV
Amplitude Accuracy:	±0.1 dB from 0 to 3 MHz +0.1 to -1.5 dB from 3 to 5 MHz
Output Waveforms:	Sine, Square, Triangle
Output Impedance:	50 ohm, 25 ohm, 0 ohm (current limited) internally selectable
DC Offset:	0.0 V to 5.0 VDC
Offset Resolution:	10 mV
Display:	High contrast LCD
Entry Method:	Direct entry numeric keypad, incremental rotary encoder
Memory:	6 non-volatile memory locations
Power Requirements:	8 to 16 VDC @ 600mA max. 110VAC power adapter included
Dimensions:	9.625" W x 3.625" H x 5.875" D 244.4mm W x 92mm H x 149.2 mm D

A jumper option for zero ohm output impedance allows for true output terminal metering. But watch out, 2.5 watts is enough to damage incorrectly connected circuits!

Surface mount technology is used throughout the SG560 making it extremely reliable and accurate. Frequency is entered directly on the sealed membrane keyboard and adjusted with a precision rotary encoder with an oversized knob. Both frequency and output level are displayed on a high contrast, two-line LCD display.

The SG560 operates on 8 to 16VDC and includes a standard 110VAC power adapter. Because of the surface mount design the SG560 is only available factory wired and tested. If you are looking for a lab quality signal generator at a super price, the new generation SG560 fits the bill... and a whole lot more!

SG560WT **Audio/RF Signal Generator, Factory Assembled & Tested** **$329.95**



Wired & Tested

SINAD Meter

Align That Receiver... QUICK!

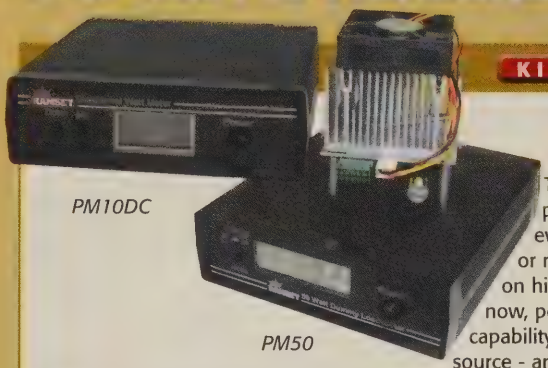
- ✔ Make reliable sensitivity checks on 2-way radios, monitors & scanners
- ✔ Just connect it to a speaker or audio point and you're done!

Having trouble aligning that receiver for the best sensitivity? Not sure if it meets spec? A SINAD meter is the answer, and the SM1WT is the solution! Just like the built-in SINAD measurement feature on our COM3010 service monitor, the SM1WT is a sinad meter that's dependable, easy-to-use, and priced right.

And, this hard working unit has been designed with the latest in digital technology, so there's no drift, tuned circuits, or touchy adjustments. Precise operation is assured through the use of crystal controlled filters and monolithic AGC circuitry with over 50 dB of dynamic range. Our wide range input allows solid readings, from the speaker leads all the way to that deep-down hidden discriminator test point. And, our exclusive"Level OK" LED tells you when the signal is locked for dependable readings.

It's a no-brainer using the SM1WT. Just connect it to the speaker - or any audio point, and you're done! That all there is to a perfect receiver alignment and test! Plus our manual explains sinad measurements so you can be an expert in minutes! Now anyone can make reliable sensitivity checks on all receivers, 2-way radios, monitors, and scanners the easy SM1 way. 12 VAC wall adapter included. Case size 9 5/8"W x 3 3/4"H x 6"D.

SM1WT **Factory Assembled & Tested SM1 Sinad Meter** **$99.95**



KIT Wired & Tested

Professional RF Power Meters

- ✔ Broadband: PM50 10 kHz to 450 MHz ± 0.5dB, 10kHz to 500 MHz ± 2dB; PM10DC 50 kHz to 250 MHz ± 1.5dB
- ✔ High dynamic range: better than 77dB!!
- ✔ Power Handling: up to 50 Watts continuous maximum; PM10DC low insertion loss, less than 0.1dB
- ✔ Readings auto-range and are displayed in Watts/dBm/etc
- ✔ Easy to read LCD display with powerful microprocessor

High Performance!

The PM line of digital power meters is what every RF lab technician or micro-broadcaster needs on his workbench. Until now, power meters of this capability cost thousands! Imagine being able to accurately measure RF power from almost any signal source - and with the PM10, be able to tune and match antennas! Once you use one, you will wonder how you ever did without it! And if you are a micro-broadcaster, the PM10DC will allow you to squeeze every drop of signal out of your transmitter into a perfectly matched antenna for maximum range!

The PM50 includes a 50 watt, 50 ohm dummy load allowing you to tune your transmitter off air without causing interference. An intelligent speed controlled fan adjusts cooling of the load according to power measured! Extremely wide power range allows continuous measurement from an amazing 1µWatt to 50Watts, all without any manual range switching or setting - that's over 77dB! And accuracy is an astounding ± 0.5dB over the entire specified frequency range!

The PM10DC is a directional coupler power meter allowing measurement of both forward and reverse power. This is very useful for tuning antennas and checking the entire transmission system. You can easily see the amount of power going out from the transmitter and the amount of power being reflected back from a mismatched antenna. Trim your antenna for maximum efficiency! Extreme dynamic range allows you to get meaningful measurements even with transmitters of less than 1mW of power or up to 50 watts! A powerful processor calculates and displays forward and reverse power, VSWR, dB of directionality, AM percent modulation, peak power, and average power. Try doing that with any other power meter for less than a thousand bucks! So which meter do you need? Use the PM50 if you need to test transmitters off-air or into a good 50 ohm dummy load. And the PM10DC is just the ticket for tuning antennas and checking your entire transmitting system. Both units include the matching case & knob set and power adapter. Case size 5"W x 1½"H x 5¼"D.

PM10DC	**Power Meter/Directional Coupler Kit, Includes Case And 110VAC Power Adapter**	**$119.95**
PM10DCWT	**Factory Assembled & Tested PM10DC**	**$164.95**
PM50	**Power Meter/Dummy Load Kit, Includes Case And 110VAC Power Adapter**	**$109.95**
PM50WT	**Factory Assembled & Tested PM50**	**$154.95**

Broadband Preamp

Wired & Tested

- ✔ Broadband...from 1 MHz to 1000 MHz, usable to 2000 MHz!
- ✔ Low noise figure, < 2.5dB
- ✔ Improves AM, FM, VHF TV, UHF TV, and HF reception. 50 – 75 ohm imp.
- ✔ Over 25 dB Gain with up to 100 mW of power output!

Increase Sensitivity Of Receivers & Test Equipment!

Ever wish you could "perk-up" your counter or scanner to read weak signals? Or how about boosting that cable TV run to drive sets throughout the house or maybe preamping that TV antenna to bring in that blacked out football game? The PR2 broadband preamp is the answer to all these needs as well as many others. You can use the PR2 anywhere a high gain, low noise amp is called for; digging out those weak shortwave signals or putting new life into that scanner radio – especially at 800 MHz. Since the PR2 has such a high compression point of almost 100 milliwatts, you can even use it to boost the power of small, micro transmitters! Microwave MMIC chips from NEC Japan enable the PR2 to have gain up to 2 GHz although we only spec the PR2 to 1 GHz (believe it or not the connector lead length is the limiting factor!). Customers tell us that the PR2 outperforms professional lab units by the "Big Boys" that go for hundreds of dollars more. The PR2 is the ideal general purpose RF amp that you'll wonder how you got along without. Runs on 12 VAC/DC or 120 VAC using the included wall adapter. Size: 4" x 2" x 1".

PR2	**Broadband Preamp, Factory Assembled & Tested**	**$69.95**

Wired & Tested

Sniff-It RF Detector Probe

- ✔ Use with any DMM or VOM to measure RF!
- ✔ Low cost RF measurement
- ✔ Can also be used as a field strength meter!

Measure RF With A VOM!

The RF1 is a very sensitive RF detector probe that connects to any digital multimeter and provides a DC voltage output from weak RF signals. This allows very easy tracing of low level RF signals that a counter can not pick up. Wide frequency coverage of 100 KHz to over 1000 MHz lets you track down most any problem in transmitter chains, receiver stages, or even complex PLLs.

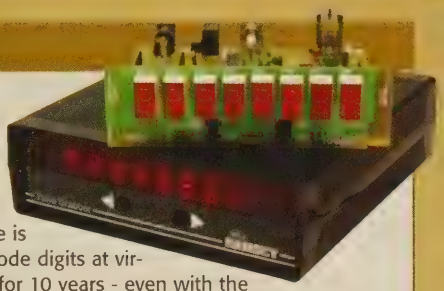
Uses exotic, low barrier microwave detector diodes to give exceptional sensitivity which can see signals down to microwatt levels! A great low cost way of checking for RF. Fully assembled and tested, and includes standard banana plugs for use with any standard VOM, DMM or voltmeter. If you need to measure RF and don't want to spend big bucks, here you go!!

RF1	**RF Sniff-It Probe, Assembled & Tested**	**$22.95**

Tone Grabber Touch-Tone Reader

KIT — Wired & Tested

- ✔ Built-in RJ11 phone jack for easy hook-up and line monitoring
- ✔ Super fast-capture numbers off the radio, repeater, phone line, etc.
- ✔ Big, bold 8-digit display with automatic insertion of dashes between number groups



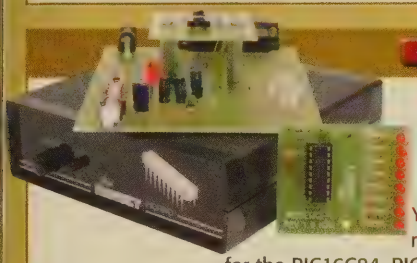
Grab Those Numbers Right Off The Air!

Dialed phone numbers, repeater codes, control codes, anywhere touch-tones are used, your TG2 will decode and store any DTMF tone it hears. A simple hook-up to any radio speaker or phone line is all that is required. Since the TG2 uses a central office quality decoder and a FLASH microprocessor, it will decode digits at virtually any speed! The FLASH storage capability of the microprocessor means you can store 640-digit numbers for 10 years - even with the power turned off!

The bright 8-digit LED display lets you scroll through the stored numbers at your leisure. To make it easy to pick out numbers or codes, a dash is inserted between any group or set of numbers that were decoded more than 3 seconds apart. Added features from its TG1 predecessor include an onboard RJ11 phone jack for easier phone line interfacing and an output latch jack offering an external trigger source when a user specified number (1 to 60 digits!) matches the monitored input! The TG2 runs on any 8 to 15 volt DC power source and is both regulated and crystal controlled for the ultimate in stability. Includes the matching professonal case set shown, measuring 5"W x 1½"H x 5¼"D.

TG2C	**Tone Grabber Touch-Tone Reader Kit With Case**	**$69.95**
AC125	**110VAC Power Adapter**	**$9.95**
TG2WT	**Factory Assembled & Tested TG2, With Case And Power Supply**	**$119.95**

PICPRO Pic Chip Programmer



KIT

Make Your Next Project Microprocessor Controlled!

- ✔ Programs PIC 16C84, FB3, FB4 microcontrollers
- ✔ Easy hookup-connects to your computer parallel port
- ✔ Includes a simple first project to test your programmer
- ✔ Download Free PICPRO software

You've seen all the super neat projects using the popular PIC series of microcontrollers. Here's a really easy to use programmer to get you up and running fast! PICPRO is our new programmer for the PIC16C84, PIC16F84, and PIC16F83 microcontrollers made by Microchip, Inc. These chips are three of the more popular PIC microcontrollers, whose special feature is that they use flash memory so no UV eraser is needed. They are also programmed by a serial data protocol, making the programmer circuit simple, easy to understand, and easy to use.

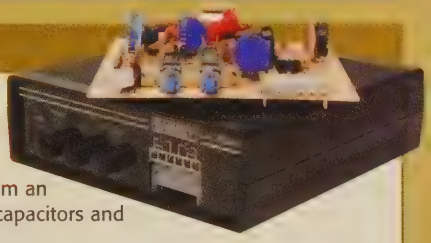
What does all this mean to you? It's a breeze! The PICPRO software required to operate the programmer includes editor software, run software, assembler software, and programmer software. All of these, as well as updates, are available on the Ramsey Electronics website. PICPRO is based on NOPPP, a PIC programmer designed by Michael Covington, and featured in Electronics Now, September 1998. Includes the matching case and knob set and AC power supply. Start programming those powerful microcontrollers now!

PIC1	**PICPRO Pic Chip Programmer Kit With Case**	**$59.95**

E-Z Check Capacitance Inductance Meter

KIT

- ✔ Connects to any digital multimeter for display
- ✔ Handy push-in test connector for unknown components
- ✔ Inductance: 10 µH to 10 mH, Capacitance: 2 pF to 2.0 µF



Verify And Measure Values In Seconds!

How many times have you wished you could simply and easily check a capacitor value or select an inductor from an unknown assortment? With the growing popularity of active filters and switching power supplies using critical capacitors and inductors, no shop should be without a reliable and convenient way to measure these parts.

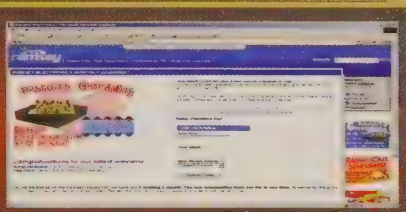
The LC1 capacitance-inductance meter hooks up to any digital multimeter and will allow you to measure inductors from 10 µH all the way up to 10 mH, and capacitors from 2 pF to 2.0 µF. Components to be measured are easily connected to the LC1 through the handy push-in test connector. Our detailed assembly manual guides you to a properly working finished kit and also provides you with ideas on proper capacitor and inductor selection for various circuits. Included with your kit are calibration components to assure proper accuracy of your meter. Uses all CMOS circuitry and is powered by a common 9 volt battery (not included). Includes our nifty matching case set, measuring 5"W x 1½"H x 5¼"D.

LC1C	**Capacitance-Inductance Meter Kit With Case**	**$44.95**

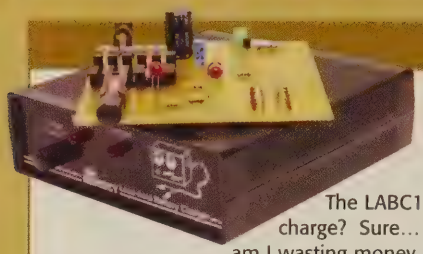
WIN! Monthly!

Register with your E-Mail address to win MONTHLY drawings for equipment valued up to $300 and more! Each month we award a value package to one lucky person!

Next month... IT COULD BE YOU!



www.ramseykits.com/win



KIT Wired & Tested

Lead Acid Battery Charger

- ✔ Automatic ambient temperature compensation
- ✔ Bright front panel charge indicator
- ✔ Automatically adjusts charge voltage depending on the battery status

No More "Fried" Gel Cells!

The LABC1 came to life because our shop forklift never starts! Could we have the alternator fixed so the battery would charge? Sure... but where's the fun in that? The problem made us think of a common question asked by our customers "Why am I wasting money replacing those fried Gel Cell batteries long before their expected life span!" Thus the LABC1 was born. The kit features fully automatic temperature compensation and automatic voltage level adjustment to avoid the dreaded "Over-Charging" scenario often found with other chargers! Whether you're charging your hobby kits' Gel-Cell or topping off the 12 Volt battery on your lawn mower, it's a simple two wire hook-up and walk away! When the battery comes to a full charge, the LABC1 switches into "Float Charger" mode keeping your battery ready for use at its optimal level. To start charging your lead acid batteries the right way and avoid costly replacements, try the LABC1! Requires 14VAC@2A; order the PS21 power supply below. Includes the matching case set, measuring 5"W x 1½"H x 5¼"D.

LABC1C	**Lead Acid Battery Charger Kit With Case**	**$39.95**
LABC1WT	**Factory Assembled & Tested LABC1 With Case And PS21 Power Adapter**	**$89.95**
PS21	**16VAC Output Power Adapter**	**$19.95**

Dr. NiCad Battery Conditioner-Charger

KIT Wired & Tested

- ✔ Unique discharge before charge circuitry eliminates "memory effect"
- ✔ Safety first circuit, with built-in timers and voltage sensors, prevents battery damage

Don't Throw Them Out!

Advanced circuitry has optimized discharge-before-charge to eliminate memory effect and to condition batteries that have been poorly cared for in the past. Quick charge rapidly brings battery to full charge in less than 1 hour; just 15 minutes for some types! And "top-off" charge mode squeezes every last bit of energy into each cell for the absolute maximum capacity. Switch-mode regulator controls constant current charge while being monitored by a negative delta-V system that cuts off the fast charge at the exact point of full charge...batteries are charged, not cooked! Runs on 12 to 15 VDC at up to 1.5 A. The custom matching case set is included, measuring 5"W x 1½"H x 5¼"D.

DN1C	**Dr. NiCad Battery Conditioner and Fast Charger Kit With Case**	**$44.95**
DN1WT	**Factory Assembled & Tested DN1 With Case And Power Supply**	**$79.95**

KIT Wired & Tested

Cable Wizard Cable Tracer

- ✔ Locate and identify any cable from telephone pairs, ethernet, coax, or even your doorbell!
- ✔ Find that ONE cable in the bundle QUICK!

Which Cable Is It? NOW You Know!

Did you ever have to identify the "other end" of that cable? Well up to now you had to ohm it out, cable by cable. Now with the Cable Wizard you can quickly identify that cable without even touching the other end! Simply connect the Wizard to the end of the cable you're working with. Then use the Wizard receiver to sniff out the other end of the cable, whether it's close to you...or across an entire building. The circuit sends out a pulsating signal down the cable which is heard in the receiver when you're close to the cable. All you have to do is hold the probe near the cable, it doesn't get much simpler than that! The transmitter is equipped with a standard RJ45 telco connector for standard 2,4,6, and 8 pair connectors and insulated clip-on leads. WCT20 includes both transmitter and receiver units. Runs on a standard 9VDC battery and includes the custom case set shown (transmitter and receiver).

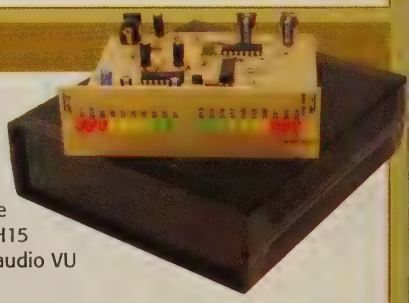
WCT20C	**Wireless Cable Tracer Kit**	**$49.95**
WCT20WT	**Factory Assembled & Tested WCT20 With Case**	**$89.95**

Peak Hold LED Bargraph Meters

KIT

- ✔ Linear, log, or semi-log response scales
- ✔ Perfect for audio monitoring

Fast Response PLUS Hold!



The PH14 series of LED bargraphs capture peak signals with great results! You can consider these bargraph units to actually be two complete LED bargraphs in one! There is the standard 10 segment bargraph with quick response, and a second set of circuitry expressly designed to catch the peaks and hold them for easy display. We offer 3 models of the PH series bargraphs: the PH14 Linear display for voltage indication and general use, the PH15 Logarithmic 3 dB/step model for audio and RF power displays and the PH16 Semi-Logarithmic model, ideal for audio VU meters. Includes the custom case set for a neat and professional finished look. Case size: 5"W x 1½"H x 5¼"D.

PH14C	**Linear Peak Hold Bargraph Meter Kit With Case**	**$34.95**
PH15C	**Log Peak Hold Bargraph Meter Kit With Case**	**$34.95**
PH16C	**Semi-Logarithmic Peak Hold Bargraph Meter Kit With Case**	**$34.95**
AC125	**110VAC Power Adapter**	**$9.95**

Coaxial Cable Tester

Wired & Tested

- ✔ Gives you absolute go/no-go results
- ✔ Indicates good, open, or shorted
- ✔ Supports popular coaxial connector types!

Check Those Coax Cables Quick And EASY!

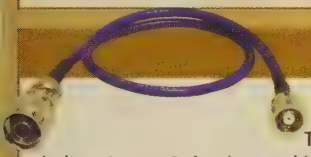
- ✔ RCA Phono-Female
- ✔ BNC-Female
- ✔ SMA-Female
- ✔ SMB-Male
- ✔ SMB-Female

It all started when we were looking for an easy way to test coaxial cables and jumpers on our production floor. We were using the old DMM probe test, and that was getting pretty lame! So we told our engineers to come up with a box to test all the coax configurations that are popular. It became the most popular item on the test floor! They put away the Fluke meters, and put one of these with every set of crimpers...and we've noticed an incredible decrease in failed cables!

So we figured if WE found it handy, so will you! The CCT1 gives you an absolute go/no-go test, showing good, open, and shorted conditions. The CCT1 has dual sets of connectors on the front panel.

Any coaxial cable with any combination of these connectors can be instantly go/no-go tested. That means you can test same connector cables as well as cross connectorized cables. Just connect both ends of your cable to the box, and instantly know its status! It doesn't get much easier than that. Operates on 12VDC with AC power adapter included.

CCT1 **Coaxial Cable Tester, Factory Assembled & Tested With Case** **$64.95**



Wired & Tested

Wireless LAN Adapter Cable

- ✔ Used with many 2.4 GHz wireless LAN access points
- ✔ Allows external antenna connections
- ✔ Low loss cable and connectors

The Mystery Connector!

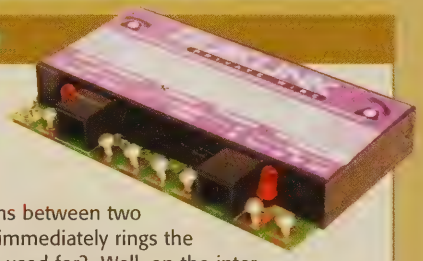
The most common connector on consumer 2.4 GHz Wireless Access Point (802.11b) products is referred to as an RP-TNC connector. This is common with Linksys, Cisco, and others. Our ISMC1 pigtail plugs directly into these devices to give you a standard Type-N male for your cable connection. Ideal for connecting external antennas to these devices. *NOTE: Not all devices use this connector, and not all devices have an external connector. Check your device BEFORE ordering this pigtail!*

ISMC1 **RP-TNC/Type-N Male 18" Low Loss Pigtail Cable** **$29.95**

Automatic Telephone "Ring Down"

Wired & Tested

- ✔ Instant off-hook ringdown access between two telsets
- ✔ Private full duplex intercom with selectable ringdown
- ✔ Instantly generates call on offhook, no dialing!
- ✔ Test ringing, answering, and signal-path functions of any telecom device



Fully Automatic, Just Go Off-hook!

What is a telephone ring down, you may ask? They have been used for years as dedicated communications paths between two standard telephone sets. Over a single pair, with a phone at either end, merely going off hook with one phone immediately rings the other phone. When picked up you have a complete intercom path to talk. No dialing necessary! What are they used for? Well, on the intercom or communications side they are commonly used for elevator phones, guard post hotlines, door entry phones in homes and offices, and on commercial job sites for rugged intercoms. But it just starts there!

Can be used to test ringing, answering, and signal path conditions of devices, two-wire off premises extensions, PABX to Key System tie lines, and more. Measures 5/8 x 4¼ x 2½ inches and is totally encapsulated in UL 94V-0 flame-resistant epoxy resin for long, reliable operation. Ringing pattern is selectable to continuous ring; 1 on 1 off; 2 on 2 off; 2 on 4 off. Runs on 12 VAC at 500 mA (Power Transformer is included) or 20–28 VDC at 300 mA. If you work on telephone equipment or are just looking for an ultra reliable telephone, the QLRD1 can't be beat!

QLRD1 **Automatic Telephone Ring Down, Factory Assembled & Tested** **$89.95**

Wired & Tested

0-30VDC Adjustable Power Supply

- ✔ 0 to 30VDC variable output
- ✔ 5A output

Every Bench Needs One!

The perfect power supply for your bench. Features a heavy duty metal case and continuous duty heatsinks. Built-in short circuit and thermal protection with "auto reset" for the most reliable operation, and to make it virtually impossible to damage the power supply! If you're looking for a great power supply, here it is! Measures 11.5" x 9" x 4.75". *(Engineer Ben wants one, I'd rather have the WS2510 weather center myself!)*

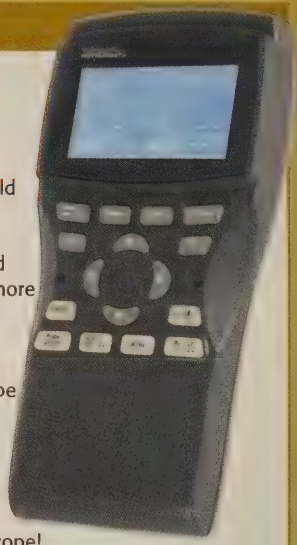
Input: 110VAC, 2.21A at rated output
Output: 0-30VDC, 5A, adjustable
Ripple: 50 mV P/P max at rated output
Load Regulation: ±2%
Adjustment: Fine and coarse adjustments
Outputs: Positive, negative and ground banana jacks

PS32LAB **Lab Power Supply, 0-30VDC, 5A Adjustable** **$99.95**

Portable Digital Oscilloscope With DVM Readout

- ✔ Digital waveform & measurement display!
- ✔ 10MHz & 40MHz sample rates
- ✔ Backlit LCD display
- ✔ RS232 output (40MHz model only)
- ✔ Charger and case included

Your Own Personal Hand Held Scope!



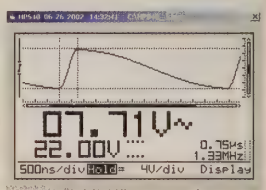
We've all seen different models of portable scopes, meters, and scope/meters. We've also seen the price tag! Unless you were a field tech with a good sized test equipment budget, they were out of the question. These Velleman "Personal Scopes" have changed all that, and put a hand held digital scope within reach of the hobbyist, student, and technician! As I'm writing this catalog copy, I personally remember when I shelled out a couple thousand dollars for my first Scope Meter! And now you can buy one of these for several hundred dollars...with more features besides!

With today's technology, merely measuring voltage isn't enough. Whether you're an auto mechanic looking for electrical noise, working with audio equipment, or a student working on lab projects, a scope is a must! Now, instead of carrying around a digital multimeter you can actually have your own personal scope at about the same price! And besides a scope, the display has DVM readout for dBm, dBV, DC, and True RMS! Frequency readout is also displayed on the screen through markers. Plus, the scopes have two memories for digital signal storage! That's right, we said it's a storage scope!

SPECIFICATIONS

	HPS10SE	HPS40
Max Sample Rate:	10MHz (2MHz single shot)	40MHz (10MHz single shot)
Max Input Bandwidth:	2MHz (-3dB at 50mV, 1V & 20V/Div x 1 setting)	5MHz (-3dB at 5mV/div to 12MHz at 1V & 20V/div)
Input Impedance:	1M ohm, 20pf standard scope probes	1M ohm, 20pf standard scope probes
Input Coupling:	DC, AC, and ground (zero reference)	DC, AC, and ground (zero reference)
Vert Resolution:	8 bit, ±1 bit linearity	8 bit, ±1 bit linearity
Trigger Modes:	Run, normal, once, roll mode for 1s/div and slower timebase	Run, normal, once, roll mode for 1s/div and slower timebase
LCD Graphics:	64 x 128 pixel, white backlit	112 x 192 pixel, white backlit
Signal Storage:	256 samples with 2 memories, max 125 visible samples, 256 using X shift	256 samples with 2 memories, max 179 visible samples, 256 using X shift
dBm Measurement:	-73dB to +40dB, ±0.5dB accuracy (0dBm=0.775V at 600 ohm)	-73dB to +40dB, ±0.5dB accuracy (0dBm=0.775V at 600 ohm)
dBV Measurement:	-75dB to +38dB, ±0.5dB accuracy (0dBV=1V)	-75dB to +38dB, ±0.5dB accuracy (0dBV=1V)
True RMS Measurement:	.1mV to 80V, ±2.5% accuracy	.1mV to 80V, ±2.5% accuracy
P/P AC Range:	0.1mV to 160V, ±2.0% accuracy	0.1mV to 160V, ±2.0% accuracy
Timebase Ranges:	0.2us to 1hr/div, 32 steps	50ns to 1hr/div, 32 steps
Input Sensitivity Range:	5mV to 20V/div at time 1, 50mV to 200V/div at times 10, 12 steps	5mV to 20V/div at time 1, 50mV to 200V/div at times 10, 12 steps
Probe Calibration Output:	2KHz/5Vpp approx	2KHz/5Vpp approx
RS232 Output:	None	Plug-in to DB9 serial cable provided. Push button to PC computer bitmap display
Power Requirement:	9V, 500mA adapter provided	9V, 500mA adapter provided
Batteries (not included)	5 AA Alkaline batteries or 5 AA NiMH rechargable batteries	5 AA Alkaline batteries or 5 AA NiMH rechargable batteries
Battery Life:	Up to 20 hours with AA Alkaline	Up to 20 hours with AA Alkaline
Operating Temperature:	0° to 50° C (32° to 122° F)	0° to 50° C (32° to 122° F)
Dimensions:	4.13" x 7.95" x 1.38" (105mm x 220mm x 35mm)	4.13" x 7.95" x 1.38" (105mm x 220mm x 35mm)
Weight:	14 oz (395g) less batteries	16 oz (450g) less batteries
Accessories Provided:	Foam lined carrying case, standard scope probes, AC power supply, user's manual	Foam lined carrying case, standard scope probes, AC power supply, DB9 RS232 cable, user's manual

The HPS40 also includes an RS232 serial output! At the push of a button you can capture the screen display to any PC connected to the serial port.



PC Screen Capture!

The scopes run on 5 standard AA Alkaline batteries (not included) which provide up to 20 hours of use. Rechargable AA NiMH batteries can be used in place of standard Alkaline batteries and will be automatically charged with the AC power adapter provided.

Each scope comes with a custom foam lined, high impact carrying case, set of high quality scope probes, AC power adapter, and comprehensive user's manual. The HPS40 also includes an RS232 interface cable for PC connectivity. If you're working with electronic circuits, automotive applications, audio and stereo applications or any other type of electronic applications, the Personal Scope is for you...at a price that can't be beat!

HPS10SE **Personal Scope, 10MHz, Case, Probes, Power Supply, Assembled & Tested** **$229.95**

HPS40 **Personal Scope, 40MHz, Case, Probes, Power Supply, RS232 Out, Assembled & Tested** **$299.95**

Protolab 4.0 Circuit & Test Simulator for PC

- ✔ Simulate a circuit BEFORE building it!
- ✔ Simple computer interface and operation

Create And Test That Circuit!

Easy to use PC interface. Easily create AC & DC circuits moments after installation with ProtoLab's simple "click and drag" component placement and online help. You choose from a complete list of active and passive components, all of which are included. Once built, you can test and analyze your circuit with five virtual instruments also included. ProtoLab is designed to work as a simulated prototyping lab. Insert components on a grid similar to a breadboard, then test the circuit using the appropriate test instrument from the tool bar. ProtoLab's prototyping grid area is extensive and can handle a vast array of active and passive components. Protolab's predesigned circuit library includes: MOSFET & transistor amplifiers, bridges, sinewave oscillators, squarewave oscillators, phase shift oscillators, current mirrors, integrators, differentiators, transistor & MOSFET monostables, LC oscillators, tuned collector amplifiers, LC tuned circuits, power supplies, and voltage stabilizers. Components include wires, junctions, grounds, resistors, capacitors, inductors, DC voltage sources, AC voltage sources, DC current sources, AC current sources, diodes, zener diodes, transistors, and MOSFETs. Including: Voltmeter, ammeter, wattmeter, oscilloscope, and ohmmeter.

PLAB4 **ProtoLab 4.0 Test Simulator Software** **$49.95**

Professional LCR & Temperature Meter

Wired & Tested

✔ Temperature probe included

Measure Resistance, Capacitance, Inductance & Temperature!

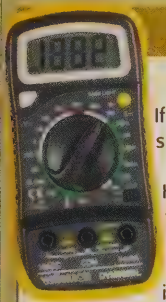
Display:	3½ Digit, 2000 Count
DC Volt:	0-20V ±2%
Ohm:	0-20/200 ohm/2/20/200/2000K ohm/20/200/2000M ohm ±0.3%
Cap:	0-200P/2/20/200nF/2/20µF ±2%/200µF to 200mF ±3%
Ind:	0-200µH/2m/20m/200mH/2H/20H±5%
Temp:	-20-500C ±2% 500C-750C ±3%
Freq:	Autoranging up to 15MHz ±0.1%
Cont:	Audible buzzer, diode test function
Over:	24VDC/24VAC Overload Protection
	10A Fused Protection
hFE:	Test Function

The DMM240 handheld LCR meter will measure resistance from 20 to 2000M Ohms in nine ranges. It will also measure capacitance from 200pF to 200mF and inductance from 2µH to 20H and much more.

It has a 3½ digit, 2000 count display. Meter Capacitance in 8 Ranges, Max & Data Hold Feature, and Autoranging Frequency to 15MHz. Comes complete with temperature probe, standard probes, and holster style case.

DMM240 **LCR & Temperature Meter** **$99.95**

Compact Multimeter With Data Hold



Wired & Tested

✔ Backlit display

Perfect For Your Tool Box!

Display:	3½ Digit LCD, backlit, 45 x 18mm Data hold
DC Volt:	200mV/2/20/200/1000V ±2%
DC Amp:	200u/2m/20m/10A
AC Volt:	200/600V
Ohms:	200/2K/20K/200K/2M ohm, Continuity buzzer, hFE & diode test
Size:	68mm x 138mm x 30mm
Battery:	Standard 9V, included

If you're looking for a nice little DMM to keep in your tool box, this one's for you! Small and inexpensive, yet packed with great functions and features.

Has all the normal ranges of a pocket DMM plus a plug-in transistor tester socket for quick transistor testing. Plus a built-in continuity test provides an audible buzzer for eyes-off testing. The oversized 3½ digit display has a selectable backlight feature which illuminates the display in the dark. Besides all this, there is a professional "data hold" feature to hold and store a reading. Also features a high impact rubber holster just like the big boys! Includes a great set of test probes and even has the 9V battery installed. All this for under $20! *(That's why there's one in my tool box!)*

DVM850BL **Compact Multimeter With Data Hold** **$14.95**

Multimeter With Temperature, Capacitance, & Frequency

Wired & Tested

✔ 30 ranges
✔ Includes temperature probe

Not Your Ordinary DMM!

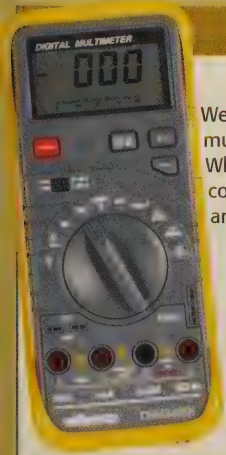
Display:	3½ Digit LCD, 31 x 61 mm
DC Volt:	200mV/2/20/200/1000V ±0.5%
DC Amp:	2m/20m/200m/20A ±0.8%
AC Volt:	2/20/200/700V ±0.8%
AC Amp:	20m/200m/20A ±0.8%
Ohms:	200/2K/20K/200K/2M/20M/200M ohm, ±0.8% Continuity buzzer
Cap:	2000pf/20nf/200nf/2uf/20uf ±2.5%
Freq:	20KHz ±1.0%
Temp:	-50°C to 1000°C ±0.75% Continuity buzzer, hFE & diode test
Size:	88mm x 170mm x 38mm
Battery:	Standard 9V, included

Great for the technician, builder, hobbyist, or auto mechanic, this little DMM is not your typical digital multimeter! Measures DC Volts and AC Volts at 10M ohm impedance. Measures DC and AC current, resistance up to 200M ohm and it doesn't stop there! It also measures capacitance up to 20uf, frequency up to 20KHz, and temperature all the way up to 1000°C.

Of course, it also includes a dedicated transistor socket for NPN and PNP transistor testing, auto power off to save batteries, audible continuity and diode testing, and an oversized display. Sounds too good to be true for 40 bucks? We thought so too! That's why they're here! Comes complete with a professional rubber holster, standard test probes, temperature test probe, users manual, and a 9V battery.

DVM890 **Multimeter With Temp, Capacitance & Frequency** **39.95**

Dual Display DMM With RS232 Output



Wired & Tested

✔ RS232 output to your PC!
✔ Manual/auto range
✔ Backlit dual display

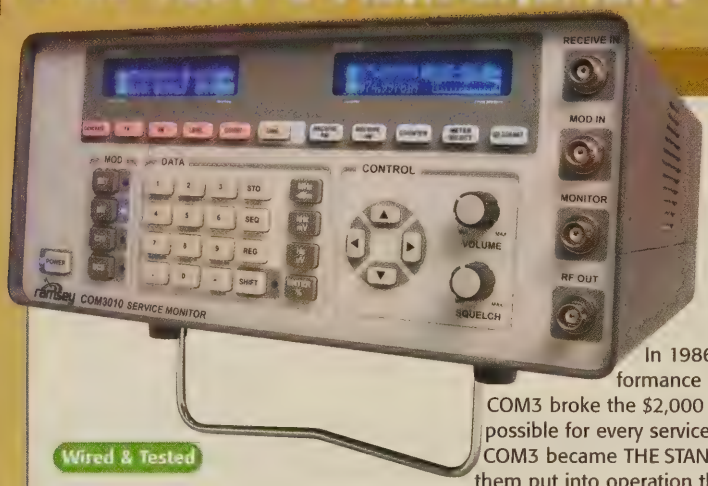
Digital Readout, Analog Bargraph, PLUS RS232!

Display:	3¾ Digit LCD, backlit,38 segment analog bar graph, with data hold
DC Volt:	4/40/400/1000V ±0.5%
DC Amp:	4mA/400mA/10A ±1.2%
AC Volt:	4/40/400/750V ±1.2%
AC Amp:	4ma/400ma/10A ±1.5%
Ohms:	2400/4k/40k/400k/4m/40m ohm ±1.2% Continuity buzzer, diode test, hFE test
Cap:	4nf/400nf ±4.0%
Temp:	0-400°C, 401 to 750°C ±3.0%
RS232:	DB9 serial with Windows software
Size:	78mm x 186mm x 35mm
Battery:	Standard 9V, included

We gave you an inexpensive pocket DMM above for under 20 bucks. Then we gave you a super multi-purpose professional multimeter that measured virtually everything for 40 bucks. What's next you ask? You won't believe it! Everything PLUS RS232 serial data output for connection to your PC! That's right, now you can measure, control, and store your DMM and its readings on a graphical display on your PC!

Features both auto and manual ranging with a large 3¾ digit digital display with a 38 segment analog bargraph. Selectable backlight and data display hold features are also included. Plug in the provided DB9 serial cable to your PC, load the included software, and you're off and running with a remote control digital multimeter from your PC! Includes standard test probes, temperature test probes, professional rubber holster, RS232 cable, installed 9V battery, Windows software CD, all in a neat travel case. *(Hard to believe for $85 isn't it!!)*

DVM345DI **Dual Display Multimeter With RS232 Output** **$84.95**



Wired & Tested

COM3010 Communications Service Monitor

Full Duplex, Loaded With Features... At A Sensible Price!

- ✔ 100kHz to 1.0GHz, full duplex
- ✔ Built-in power meter & dummy load
- ✔ Built-in frequency counter
- ✔ Built-in sweep generator
- ✔ Built-in SINAD meter
- ✔ Built-in calibrated RSSI meter
- ✔ Built-in RS232 control
- ✔ Built-in Li-Ion battery packs

In 1986 we introduced the COM3 Communications Service Monitor. Rivaling the performance and features of communications service monitors selling for $10K and more, the COM3 broke the $2,000 price barrier! For the very first time Ramsey Electronics made it economically possible for every service vehicle to have their own service monitor! From 1986 until 2003 the Ramsey COM3 became THE STANDARD for low cost, performance packed service monitors with over 5,000 of them put into operation throughout the 2-way radio, pager, and other communications industries.

That legacy continues today with the Ramsey COM3010. The COM3010 is our brand new, full duplex service monitor designed from the ground up to give you the best features available at a price that can't be beat! We asked the owners of those 5,000 COM3's what they would like to see in a brand new Service Monitor. We took a long hard look at the competitive units available and came up with the best of both worlds! The COM3010 provides some of the greatest features available in a service monitor today, at a fraction of the cost of the competition.

SPECIFICATIONS:

FEATURES

Display:	2 vacuum fluorescent graphical displays, 16x140 pixels
Memories:	100 sequences of 100 registers plus system memories
Sweep Features:	Linear, octave, and decade of up to 10,000 points
Scanner Mode:	Allows scanning through a sequence of 100 stores
SINAD Meter:	Displays reading from -30dB to 0dB of SINAD
Freq. Counter:	Measures frequency error to 1 Hz in three counter modes
Battery Meter:	Displays charge left in batteries
Reverse Protection:	Generator output protected, switches into 100W internal load and automatically displays power in dBm or watts.
Power Meter:	Displays power from +23dBm to +50dBm, ± .5dB (200mW-100W)
Attenuator Output:	-30dB sample port from load for external equipment
RSSI Meter:	80dB of range on receiver side, -40dBm to -120dBm
Warranty:	One-year parts and labor with extended Ramsey Technical Support and dedicated COM3010 user forum access

GENERATE MODE

Frequency:	100kHz to 1.0GHz in 1Hz steps
Freq. Accuracy:	± 0.1ppm standard
RF Output Level:	-140dBm to 0dBm in 0.1dBm steps
Level Accuracy:	± 1dB, 500kHz to 1GHz, ±2dB 100kHz to 500kHz
Units:	dBm, uV, mV
Leakage:	Better than 1uV, 2 turn loop, 1" diameter at 1"
Spurious Harmonics:	-30dBc typical
Non-harmonics:	-50dBc typical
FM Modulation:	±75kHz max in 0.1Hz steps
FM Bandwidth:	0.1Hz - 75kHz
Accuracy:	± 0.1ppm (inherently tied to reference frequency)
AM Modulation:	0 - 75% in 1% steps to -100dBm, 0-50% to -140dBm
AM Bandwidth:	10Hz - 10kHz
Accuracy:	± 5%
Distortion:	Less than 5%
Modulation Internal:	0.1Hz - 3kHz
Modulation External:	0.1Hz - 3kHz digital and analog selectable, auto leveling.
CTS Encode:	0.1Hz to 999.9Hz at ±.75kHz default deviation, variable from .1Hz to 2kHz deviation
DPL Encode:	±750Hz, all supported codes

RECEIVE MODE

Frequency:	100kHz to 1.0GHz in 10Hz steps
Sensitivity:	Less than 2uV below 512MHz Less than 3uV above 512MHz
FM Demod:	0 - 7kHz, 0 - 4kHz
AM Demod:	0-100%
CTS Decode	In AF frequency count
Frequency Error:	0-1MHz, two methods of bargraph and count
AF Demod output:	1Vp-p for 7kHz deviation
Gates:	0.1 sec, 1 sec

FREQUENCY COUNTER

Frequency Range:	100kHz - 1GHz
Low Band Sensitivity:	Less than 10mV under 70MHz, 1Hz and 10Hz resolutions
High Band Sensitivity:	Less than 10mV, 70MHz - 1GHz, 10Hz and 100Hz resolutions with divide by ten prescaler
IF Frequency:	Receiver sensitivity, range limited to bandwidth of current set receiver frequency ±10kHz, 1Hz, and 10Hz resolutions

AUDIO COUNTER

Frequency Range:	60Hz - 3000Hz
Gates:	10 Sec variable gate for 1 sec quick updates
Sensitivity:	35mV at demod audio, (± 750Hz deviation)

GENERAL

Receiver input:	Has diode protection and fused components
Controls:	Elastomeric keypad
Dummy Load:	100W 30dB feed-through attenuator with sample port on rear, 25% duty cycle full power
RS232 Control:	Serial interface provides external function control and automated calibration
Primary power:	100-240VAC, .6A, 50/60Hz; built in Li-Ion battery
Stand:	Bottom mounted tilt-bail stand included
Case Color:	Mist gray epoxy powder coat
Supplied Accessories:	110VAC EIA cord, BNC-BNC test cable, whip antenna, one BP3010 Li-Ion battery
Dimensions:	6" H x 11.9375" W x 14.75" D (152.4mm H x 303.31mm W x 374.65mm D)
Weight:	14 lbs (6.5kg)

Visit www.ramseytest.com
Or Call 800-446-2295 Today!

Lease It For As Low As $89/Month! Call for details

RSG1000B RF Signal Generator

- ✔ 100kHz to 1.1GHz!
- ✔ 10Hz continuous tuning
- ✔ AM & FM internal and external modulation
- ✔ 90 user setup memories
- ✔ RS232 interface
- ✔ 0.1ppm stability

Professional Quality At A Hobbyist Price!

DETAILED SPECIFICATIONS *(at 0dBm output level)*

Frequency Range:	100kHz to 1.1GHz
Resolution:	10Hz continuous tuning, 100Hz above 1000MHz
Oscillator Frequency:	50MHz TCXO
Oscillator Stability:	±0.1ppm from 15°C to 35°C
Harmonics:	-30dBc typical, 1MHz–1100MHz
Non-Harmonics:	-50dBc typical
Residual FM:	5 Hz typical, 0.3 to 3 KHz detection BW
Residual AM:	-60dBc (>10KHz from carrier) 0.3 to 3 KHz detection BW
Output Level:	-130 to +10dBm (50 Ohms); Resolution: 0.1dB
Level Accuracy:	±1dB (>500 KHz)
Level Units:	dBm, dBmV, mV, dBµV, µV
Reverse Power Protect:	25 watts, 50 VDC
Leakage:	1µV (2 turn loop, 1 inch diameter, 1 inch distance)
FREQUENCY MODULATION	
Range:	0–99.9KHz in 0.1 KHz steps
Accuracy:	±5% of scale
Freq. Response:	50Hz to 15KHz
Max. Deviation:	99.9KHz; except 250 to 500MHz, 50KHz
AMPLITUDE MODULATION	
Depth:	0–75% in 1% steps <0 dBm
Distortion:	Less than 5%
Accuracy:	±5%
Freq. Response:	50Hz to 25KHz
Modulation Sources:	Internal 1KHz derived from reference. External – 600 ohm impedance with level LEDs to indicate correct 1 Volt p-p input level
Front Panel:	Sealed membrane with audio acknowledgment
Display:	Two line, vacuum fluorescent display
RS-232:	RS-232 interface provides polled readout plus downloading and uploading of all front panel setups
Memory:	90 full front panel set-ups. 9 series of 10 memories each. 10 year retention
External Timebase Input:	10MHz, 1 Volt p-p
Power Requirements:	90 to 230 VAC ±10%, 50/60Hz
Dimensions:	12"w x 6"h x 12"d
Weight:	11 lbs.

EXCELLENT VALUE

The RSG1000B has been designed to fill the need for a basic RF signal generator for design, development, and testing. We've included the performance and features you need every day, and priced it to let you equip every bench in your shop or classroom.

The broadband frequency range covers 100kHz all the way to 1.1GHz with 10Hz continuous tuning! 90 set-up memories are provided for custom user operations and saved settings to speed up your frequent tasks

RS232 CONTROL

The RSG1000B features an RS232 control interface. This interface supports polled readings plus download and upload of all setup memories.

ACCURATE AND STABLE

Frequency synthesis is referenced to an internal 0.1ppm 50MHz timebase. This timebase is STANDARD equipment with the RSG1000B!

COMPACT SIZE

At 12" x 6" x 12" and 11 lbs., the RSG1000B it is suitable not only for bench use but for mobile applications and to use as a field service tool or local oscillator.

EASY TO USE

The display is a bright blue vacuum fluorescent display you can read from across the room, and displays all operating parameters. A numeric membrane keypad enables direct entry of all values. All functions are accessible without using a "shift" or second function key for real ease of use. We have also incorporated a "smart knob" which has analog feel, but is intelligently enabled when entering or changing parameters in any field.

COST EFFECTIVE!

We designed the RSG1000B with the casual user in mind who demanded professional features at a hobbyist price. We encourage you to compare the RSG1000B to any of the "other guys". Take a close look and compare your needs and performance to the dollars you will spend. You'll see immediately that the RSG1000B offers the best cost-performance value available today. As one of our satisfied customers stated, "With the RSG1000B I get 90% of the performance of a $20,000 RF generator for 10% of the price; it's really a no brainer". If you are looking for a cost effective solution to your RF signal generator requirements, we're sure the RSG1000B will fit the bill!

RSG1000B **RF Signal Generator, 100kHz to 1.1GHz, 0.1ppm Timebase** **$1995.00**

Are You Working With Wireless Devices?

Trust your testing to Ramsey's patented RF Shielded Test Enclosures!

Visit www.ramseytest or call 800-446-2295

KIT

High Performance Yagi Antennas

Commercial Quality... At A Hobbyist's Price!

- ✔ Construction that's rugged and simple
- ✔ Feed point fully watertight and sealed
- ✔ Cut elements during assembly to exact frequency desired

Model	Elements	Gain	F/B Ratio	Length	Frequency
140-3	3	5 dB min	20 dB min	3 ft	140 - 300 MHz
400-4	4	7 dB min	15 dB min	2 ft	300 - 500 MHz
918-4	4	7 dB min	14 dB min	1.2 ft	902 -928 MHz

Joe Reisert, WIJR, probably the best known VHF'er, has entered into the antenna business with a killer line of Yagis. Joe sent us a couple of antennas to check out and were we impressed! We've got some pretty decent HP test gear here at the plant and measuring his antennas was a delight. Talk about a match at 50 ohms impedance; even our $1800 EMI antenna couldn't come close to one of Joe's antennas.

Construction is rugged and simple. Joe wisely made the feed point fully watertight and sealed the coax right into it - no more antennas that go flaky when the weather's bad. Another nice feature is the ferrite sleeve balun, most often left out on other antennas. You'll find no coax radiation with this Yagi. In short, these are the finest 3 and 4 element Yagis on the market - we guarantee it! *(Got one of these at 900 MHz...works great!)*

1403	**Yagi Antenna, 140-300 MHz**	**$79.95**
4004	**Yagi Antenna, 300-500 MHz**	**$79.95**
9184	**Yagi Antenna, 902-928 MHz**	**$109.95**

Precision Printed Circuit Antennas

Wired & Tested

- ✔ Small thin size with excellent performance
- ✔ Very directional—ideal for transmission or reception use
- ✔ No tuning needed!
- ✔ Rugged FR-4 construction

Broadband And No Tuning!

This series of Log Periodic and Yagi PCB Antennas allow you to cover the entire spectrum from 400 MHz to 6.0 GHz! If you want to get the maximum performance out of your UHF to low frequency microwave wireless system, one of these little babies is the answer! Their directional property "compresses" the signal into a powerful beam that is 4 times more powerful in the desired direction.

They are the ideal antennas for scanners, wireless LAN's, and other wireless devices. When you need a dedicated point-to-point link, they have no equal!

Maintenance free construction on rugged FR-4 material boasts the added advantages of no tuning and no fragile antenna elements to break or twist! The small size and wide bandwidth make them ideal for feeding reflector antennas such as easily constructed corner reflectors or parabolic grids. Pick the one that's right for you and start enjoying the fruits of a well designed system!

The Log Periodic models LPY41 (400-1,000 MHz, SMA-female), LPY2 (900-2,600 MHz, SMA female), and the LPY26 (2,100-11,000 MHz, SMA-male) easily interface to your system via the provided connectors. The wide bandwidth characteristics of the Log Periodic design ensure total reliability within their respective ranges.

The Yagi model LPY915 (915 MHz, BNC-male) is a patented design perfect for directionally extending the range of your cordless phone or other 915 MHz wireless device. Finally, the answer to those poor range blues! *(So I put the LYP2 in the last catalog and the web, and we found people buying them and reselling them on EBay for 10 times our price! I guess congrats to the entrepreneur who thought of that, and the the stupid award goes to the people that bought them!!! Editor's comment!)*

LPY41	**Logi Log Periodic PCB Antenna, 400-1,000 MHz, Factory Assembled & Tested**	**$39.95**
LPY2	**Logi Log Periodic PCB Antenna, 900-2,600 MHz, Factory Assembled & Tested**	**$34.95**
LPY26	**Logi Log Periodic PCB Antenna, 2.1-11.0 GHz, Factory Assembled & Tested**	**$34.95**
LPY915	**Directional Yagi PCB Antenna, 915 MHz, Factory Assembled & Tested**	**$29.95**

Wired & Tested

Telescopic Whip Antenna

Swivel BNC Mount For Any Application!

- ✔ High quality with BNC connection
- ✔ Covers VHF and UHF bands

Ideal for handheld portables, receivers, and communications test equipment. Professional chrome finish with integral swivel mounted BNC connector for virtually any application! From the top of equipment to 90 degrees on the back of equipment, it will work like a champ! Whip extends 5.25" to 27.75" to cover a wide variety of ranges with ease!

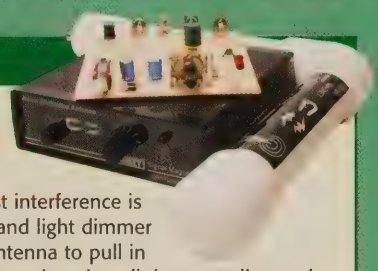
WA10	**Telescopic Whip Antenna**	**$14.95**

Signal Magnet Antenna

KIT

Wired & Tested

- ✔ Outstanding results from 500 KHz to 15 MHz
- ✔ High-Q Ferrite Rod antenna with Faraday shield eliminates noise from power lines, light dimmers, most static crashes, and more!

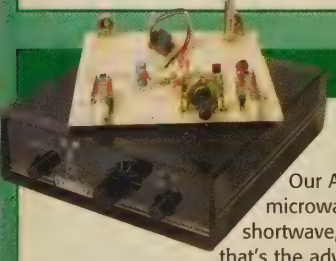


Pull In That Station Right Out Of The Noise!

This antenna responds only to the magnetic field of the desired station and ignores the electrostatic field where most interference is found. It does a remarkable job pulling in stations lost down in the noise of powerline crud, fluorescent lamp buzz and light dimmer hash. Plus it's very directional, able to null strong stations on the same or nearby frequencies! We developed this antenna to pull in WGR, a 250 watt nighttime station 75 miles away, so we could listen to Buffalo Bills talk radio during the night. You can imagine all the powerline and equipment noise we have here at the factory. So, we came up with this ferrite rod, varactor tuned active antenna that's Faraday shielded - it only responds to the magnetic field - and boy does it do the job!

Designed to cover the AM broadcast band, but includes details on building for any frequency range up to 15 MHz; it works gang-busters on Shortwave. Works indoors or out, contained in rugged PVC pipe with a single RG-59 coax cable connector. Operates with up to 500 feet of coax cable (you supply) between antenna assembly and control box (size: 5" x 5 ¼" x 1½"). Includes all parts, matching case set and precut PVC materials. Operates on external 120 VAC power adapter that is included. Antenna is 9 1/2" x 9" long, L-Shaped 1" pvc pipe with end caps. *(It worked just great to listen to the Bills players explain for 4 straight years why they lost the Super Bowl!)*

SM100	**Signal Magnet Noise Reduction Antenna Kit With Case**	**$89.95**
SM100WT	**Factory Assembled & Tested for AM Band**	**$134.95**



Active Antenna

KIT

- ✔ Dual Preamp for HF or VHF/UHF
- ✔ Performs like a 60' Long Wire!
- ✔ Operates as a stand-alone antenna or in conjunction with an existing antenna

The Easy Antenna!

Our AA7 features both a high gain, low noise FET and a superb microwave bipolar amplifier, letting you use the antenna on all bands - shortwave, HF, VHF and UHF! Imagine a self-contained unit just 4 inches square that pulls in the signals like a 60 foot long wire; that's the advantage of an active antenna. For jazzing up VHF/UHF receivers and scanners, the AA7 has you covered, too. Over 15 dB of gain pulls in the weak ones, whether you use the built-in telescopic whip or an outside antenna.

Features of the AA7 include: Front panel RF gain control, power switch with preamp bypass switching, two position HF and VHF/UHF selector, rear panel input and output connectors, convenient 9 volt battery operation and on-board telescopic whip antenna. We think you'll agree that the AA7 is simply the most practical and best value of any active antenna on the market! Includes whip antenna and matching case set. Operates on 9 V battery (not included). Case size 5"W x 1½"H x 5¼"D.

AA7C	**Active Antenna Kit With Case**	**$39.95**

Tru-Match FM Antenna

KIT

- ✔ Fully weatherproof - rugged pvc construction
- ✔ Matches 50 or 75 ohm systems
- ✔ Tunable for perfect match over the entire 88 to 108 MHz FM band

Rugged PVC Construction... Keeps The Weather Out!

We've been besieged with calls asking us where to get a good quality FM Broadcast antenna. Remember, matching your antenna to your transmitter is the single most important link in your transmitter setup - and a good antenna and match are the secret to getting maximum range.

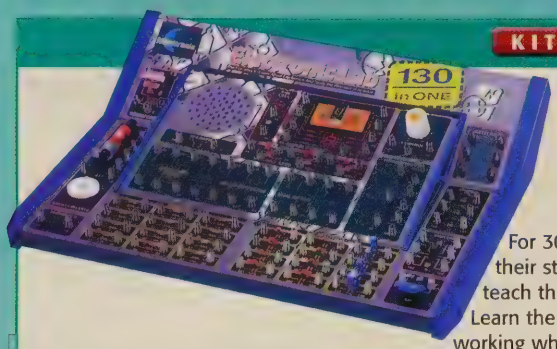
When we say "match" we mean electrical impedance match... if the proper impedances are not maintained between transmitter and antenna, power is reflected away from the antenna and back into the transmitter! This can cause the final amplifier stage to be damaged, not to mention spurious signals and lousy range. Buy this kit and get the most from your FM Broadcaster!

TM100	**FM Broadcast Low Power Antenna Kit (25 W Max)**	**$69.95**

Looking for FM Broadcast Antennas?

Check out the antenna designed especially for your FM Broadcast Station on page 32.

GET MAXIMUM RANGE, USE THE PROPER ANTENNA!



KIT

Super-Fun 130 In 1 Electronic Lab

Start A Great Hobby In Electronics!

- ✔ No prior knowledge of electronics needed!
- ✔ Solderless connections for safe assembly
- ✔ Build 130 different circuits and see them work!
- ✔ Includes a comprehensive instruction & theory manual written for the youngest novice to understand!

For 30 years, Ramsey has provided educational hobby kits giving thousands and thousands of kids their start in electronics. We've searched and searched for an Electronics Lab specifically designed to teach the youngest experimenter the fun and excitement of electronics. The PL130 does just that! Learn the basics and theory of electronics the fun way, while building 130+ projects that you actually see working when you're done! The detailed 162 page instruction manual covers the hows and whys of every circuit, theory, parts identification, and description. We've looked at a lot of these kits, and have turned them down because of the documentation. This one is a winner!

LOTS OF PROJECTS? YOU BET!

Electronic Woodpecker
The Chirping Bird
Electronic Cat
Sonic Fish Caller
Machine Gun Pulse Oscillator
Electronic Motorcycle
Two-Tone Patrol Car Siren
Electronic Siren
Electronic Metronome
Electronic Grandfather Clock
Light-Controlled Electronic Harp
Horror Movie Sound Effects
Strobe Light
Rapid LED Display Switching (Persistence Vision Test)
Capacitor Discharge/High Voltage Generator
Capacitors in Series and Parallel
Resistors in Series and Parallel
Light Dimmer
Transistor Switcher
Transistor Circuit Action
Sound Amplifier
Flip-Flop Multivibrator with LED Display
Seven-Segment LED Digital Display Circuit
Basic LED Display
Transistor Control Switching of the LED Display
Transistor, CDS Cell and LED Display Circuit
Diode-Transistor Logic AND with LED Display
DTL OR Circuit with LED Display
DTL NAND Circuit with LED Display
DTL Exclusive OR Circuit
Transistor NOR Circuit with LED Display
Transistor Flip-Flop Circuit
Transistor Toggle Flip-Flop
Transistor-Transistor Logic Buffer Gate
TTL Inverter Gate
TTL AND Gate
TTL OR Gate
TTL Exclusive OR Gate
TTL NOR Gate
TTL Three-Input AND Gate
TTL AND Enable Circuit
TTL OR Enable Circuit
TTL NAND Enable Circuit
TTL R-S Flip-Flop
Toggle Flip-Flop Circuit Made from NAND Gate
TTL Line Selector
TTL Data Selector
TTL Astable Multivibrator
TTL Tone Generator
Winking LEDs
A One-Shot TTL
Transistor Timer with TTL
Buzzin' LED
Son of Buzzin' LED
Set/Reset Buzzer 1
Set/Reset Buzzer 2
Sound Machine
Big Mouth
Shot in the Dark
Variable R-C Oscillator
Oscillator with Turn-Off Delay
Temperature-Sensitive Audio Oscillator
Two-Transistor, Directly Connected Oscillator
Push/Pull Square Wave Oscillator
Pencil Lead Organ
LED Strobe Light
Electronic Organ
Daylight Early Bird
Intermittent Alarm Generator
Comparator
Basic Increase in DC Voltage
Constant-Current Source
Integrating Circuit
Schmitt Trigger Circuit
Noninverting Two-Power Supply Amplifier
Inverting Two-Power Supply Amplifier
Noninverting Single-Power Supply Amplifier
Two-Power Supply Differential Amplifier
Tone Mixing Amplifier
Power Amplifier Using Operational Amplifier
Voltage Controlled Oscillator Circuit
Operational Amplifier Buzzer
Burglar Alarm
Hand-Operated Sweep Oscillator
Falling Bomb Sound
Emergency Siren
First Aid Siren
Musical Tempo Generator
Operational Amplifier Winking LED
LED Flashing Light
Two-LED Winker
One Shot Light
LED Initials
Wake Up Siren
Voice-Activated LED
Logic Tester
Alternating Current Sound
Light Control Sound Circuit
Sound Alarm Circuit
Study Timer
Kitchen Timer
Three-Input AND Gate Using Operational Amplifier
Voice Level Meter
Power-On Reset Circuit
Delayed Timer
Pulse Frequency Doubler
White Noise Generator
DC-DC Convertor with Operational Amplifier
Code Practice Oscillator with Tone Control
Crystal Set Radio (Simple-Diode Radio)
Two-Transistor Radio
Wireless Code Transmitter
AM Radio Station
Operational Amplifier Radio
Aural Continuity Tester
Conductivity Tester
Transistor Checker
Sinewave Audio Oscillator
Low Distortion Sinewave Oscillator
Twin-T Audio Oscillator
Pulse Oscillator Tone Generator
Audio Signal Tracer
Radio Frequency Signal Tracer
Square Wave Audio Oscillator
Sawtooth Wave Oscillator
Rain Detector
Water Level Buzzer with Operational Amplifier
Metal Detector
Water Level Alarm
Three-Step Water Level Indicator

This Lab is a perfect start to a great new hobby in electronics, whether it's for you, your kids, or your friends. *When these came in, I took one home to my 13 year old son, and he went wild! Then he built the SWL Radio Kit (SR3, Page-49) and listened to overseas radio broadcasts for the first time. He's now asking me what surface mount technology is all about! (Sure beats him glued to the TV playing video games...except for that Electronic Cat!)*

PL130 **130 In 1 Electronics Lab With Comprehensive Learning Manual** **$42.95**

Complete 300 In 1 Electronic Lab

KIT

- ✓ Build 300 exciting electronic projects
- ✓ Solderless connections for safe assembly
- ✓ No tools required!
- ✓ 165 page comprehensive instruction & theory manual!

300 Projects Plus The Theory!

After we introduced our PL130 lab kit, we were amazed at the customer response. Hundreds and hundreds were ordered, and re-ordered by everyone you could imagine! From parents for their kids, to grandparents for THEIR kids and grandkids! The response has been the same..."THEY LOVE IT!". We've expanded our line to include this 300 in one lab kit, and the 500 in one lab kit on page 48. Just like the PL130, this lab includes an incredible 165 page comprehensive manual covering the construction of EACH project and the theory behind it.

Includes ALL of the projects in the PL130 PLUS THE FOLLOWING:

Surprise and Fun
Light-Controlled Bird
A Transistor Radio
Sound Scooper
American Patrol Car Siren
Digital Roulette
IC Organ

Back to the Basics
Light Telegraph
Introducing the Resistor
Parallel Resistor
Meet the Diode
The LED-a Special Diode
The Electronic Gas Tank
Meet the Transistor
Transistor as switches
PNP Transistor Switch
NPN Transistor Switch
Delay Light
Night Light
Electronic Timer
Capital Letter Display
Small Letter Display
Number Display

Electronic "Building Blocks"
An Inverter Circuit
Meet the OR Gate
Introducing the AND Gate
Using the NOR Gate
Meet the NAND Gate
How a Multivibrator Works
A "One-Shot" Multivibrator
An R-S Flip Flop
Meet the Oscillator
Changing Oscillation with Capacitor
Changing Oscillation with Foreign Substance
More about Oscillator
A Push-Pull Oscillator

Putting Electronics to Work
CdS Controlled Oscillator
Frequency Shift Oscillator
Motion Detector
Door Alarm
Rapid LED Display Switching
Code Practice Unit
Current Switch
Two-Tone Buzzer
Astable Multivibrator
Monostable Multivibrator
Code Practice Unit
The Noisy Light
Hearing Aid Amplifier
Light/Sound Code Practice Unit
Light Controlled Burglar Alarm
DC-DC Converter
Count Down Timer
Transistor Frequency Doubler
One Transistor Full-Wave Rectifier

Radio Circuits
"Crystal Set" Radio
"Funny Transistor" Radio
Remote Water Level Detector
IC Radio
Morse Code Transmitter
AM Transmitter
Broadcasting Organ

Sonic Zoo and Sound Factory
Plant Growth Stimulater
Electronic Woodpecker
Fish Caller
Electronic Raindrops
Machine Gun Pulse Detector
Chirping Bird
Electronic Bird
"Horror Movie" Sound Effect
Sound Machine I
Sound Machine II
Multi-Tone Siren
Digital Rhythm
Two-IC Electronic Organ

Electronic Decision-Makers
Majority Logic Gate
Electronic Coin Toss
Electronic Coin Toss II
Electronic Coin Toss III
Even or Odd
Quick Draw Game
Close-In
ESP Tester
The Light Fantastic
Shooting Game
Marching LEDs
Electronic Dice
Electronic Roulette

Operational Amplifier IC Can Do Many Things
Meet the VCO
Silicon Diode Solar Cell
Astable Multivibrator Using OP Amplifier
Pulse Generator
Experiment of Comparator
Comparator with Hysteresis
Constant Current Sources by OP Amplifier
Non-Inverting Adder
Touch Switch Using OP Amplifier
Early Bird
DC-DC Converter by OP Amplifier
Inverting Amplifier
Non-Inverting Amplifier
Differential Amplifier
Differential Output Amplifier
Power Amplifier Using OP Amplifier
Balanced Transformerless Amplifier
Three-Stage Differential Amplifier
VCO Using OP Amplifier
Voltage Controlled Amplifier
V-F Converter
F-V Converter
Sweep Generator
Multiple-Function IC Project
Sound Alarm
Photo Organ
Vibrato Organ

Introducing the Power Amplifier IC
IC Power Amplifier
IC Power Amplifier II
Oscillator Using Power Amplifier IC
CdS Controlled IC Oscillator
Phase Shift Oscillator
Intercom
A Water Service Pipe Sound
Electronic Klaxon
Wide Range Audio Frequency Oscillator

A Trip to Digital Land
Switching Circuit
RTL Inverter
RTL Buffer
RTL OR Gate
RTL AND Gate
Transistor OR Gate
Transistor AND Gate
Transistor XOR Gate
Special NAND Gate
DTL OR Gate
DTL AND Gate
DTL NOR Gate
DTL NAND Gate
DTL Exclusive OR Gate
C-MOS Inverter
C-MOS Buffer
C-MOS OR Gate
C-MOS AND Gate
C-MOS 3-Input And Gate
C-MOS NOR Gate
C-MOS 4-Input NOR Gate
C-MOS 4-Input NOR Gate II
DeMorgan's Theorem
Experiment of Threshold Voltage
NAND/NOR and Transistor Switch

More Adventures in Digital Land
C-MOS XOR Gate
C-MOS NAND Enable Circuit
C-MOS AND Enable Circuit
C-MOS OR Enable Circuit
A One-Shot NAND Gate
C-MOS Line Selector
C-MOS Data Selector
C-MOS R-S Flip Flop
C-MOS Flip Flop II
Set/Reset Buzzer
Set/Reset Buzzer II
Set/Reset Buzzer III
Transistorized Toggle Flip Flop
NAND Toggle Flip Flop
J-K Toggle Flip Flop
C-MOS Astable Multivibrator
C-MOS J-K Flip Flop
C-MOS D Flip Flop
C-MOS D Flip Flop II
R-S-T Flip Flop
T Type Flip Flop
C-MOS Latch
Shift Register
Touch Switch Using NAND Gate
Half Adder
D-Latch
2-Line to 4-Line Decoder
Multiplier
Dual 2-Input Multiplexer
Two-Stage Frequency Divider

Circuits That Count
Basic Counter
Synchronous Counter
Asynchronous Counter
Counter with Line Decoder
Divide by 4 Counter
Divide by 4 Counter with Line Decoder
How a Line Decoder Works
Multiple Counter
Binary Counter with Display
Divide by 3 Counter Display
Divide by 4 Counter Display
Up/Down Counter
Down Counter
Decade Down Counter
Decade Down Counter with Display
Presettable Counter
Hexadecimal Counter
Octal Counter
Random Access Display
Decade Counter
BCD Counter with Display
Octal Counter with Line Decoder
Octal Counter with Display
Decade Counter with Display
Decade Counter with Display II

Getting Closer to Computers
BCD to 7-Segment Decoder
Full Adder
Decimal to Binary Encoder
Binary to BCD
Octal to BCD
Hexadecimal to BCD
3-Bit Shift Register

Amusement in Digital Land
VCO by NOR Gate
Pulse-Delayed Circuit
NAND Gate Tone Generator
Transistor Timer
Noise-Signal Discriminator
Pulse Stretcher
Bidirectional Buffer
Various Inverters
Electronic Switch
Tone Burst Generator
Digital Timer
Digital Timer II
Ten Count Buzzer
Press First
Target Range
Catch the Eight
SOS Alert
Wheel of Fortune
Leapin' LEDs

Shakehands of Analog and Digital
Pulse Number Modulation Light Dimmer
Pulse Width Modulation Light Dimmer
DC-DC Converter Using the C-MOS Oscillator
Absolute Value Amplifier
Window Comparator
Digital Light Dimmer
A-D Converter
D-A Converter
Photometer with Digital Display
Surprise and Fun Revisited
Experiment of Electromagnetic Induction
Electronic Candle
Constant Current Circuit
A Phony Counter
Alphabet Flasher
Winking LEDs II
Delayed Timer II
Crossing Signal
Octave Generator
Sound Out Timer
Sound Stop
Big Mouth!
Light or Sound
Be Your Own Multivibrator
Anticipation
Set/Reset Match

Testing and Measuring Circuits
Circuit Continuity Checker
Acoustic Ohmmeter
Audio Signal Generator
Temperature-Sensitive Audio Amplifier
Water Level Detector
Battery Checker
IC Oscillator/Component Tester
Voltage Drop Alarm
Current Shut-Down Circuit
Logic Checker
Logic Checker II
Temperature Alarm
Function Generator

PL300 **300 In 1 Complete Electronics Lab With Comprehensive Learning Manual** **$69.95**

Shop online at www.ramseykits.com
Call Toll Free 800-446-2295

KIT

Advanced 500 In 1 Electronic Lab

- ✔ 152 page starter course manual!
- ✔ 78 page advanced course manual!
- ✔ 140 page programming course manual!
- ✔ Quality hinged case construction

Advanced Learning Courses Plus 500 Separate Projects!

We went one step beyond our 300 in one lab kit! Yes, 500 in one, PLUS comprehensive learning course manuals! Build 500 exciting projects, learn schematics, build and learn both analog and digital circuits, and even get into digital programming. 500 projects, 370 pages of comprehensive course manuals, and LOTS OF FUN! ***Includes ALL of the projects in the PL130 AND the PL300 PLUS THE FOLLOWING:***

Back to the Basics
Capacitors in Series and Parallel

Electronic "Building Blocks"
Low Distortion Sinewave Oscillator

Putting Electronics to Work
Strobe Light
Electronic Grandfather Clock
Electronic Metronome
Twin-T Audio Oscillator
Current Switch
Shot in the Dark
Variable R-C Oscillator
Two-Tone Buzzer
Sawtooth Wave Oscillator

Radio Circuits
Wireless Code Transmitter

Sonic Zoo and Sound Factory
Two-Tone Patrol Car Siren
Pencil Lead Organ
Electronic Motorcycle
Machine Gun Pulse Detector
Electronic Siren
Electronic Cat
Electronic Organ

Electronic Decision-Makers
Majority Logic Gate
Electronic Coin Toss
Electronic Coin Toss II
Electronic Coin Toss III
Even or Odd
Quick Draw Game
Close-In
ESP Tester
The Light Fantastic
Shooting Game
Marching LEDs
Electronic Dice
Electronic Roulette

Operational Amplifier IC Can Do Many Things
Integrating Circuit
Pitch Doubling Circuit
Pitch Doubling Circuit II
Comparator
Schmitt Trigger Circuit
Delayed Timer
Pulse Frequency Doubler
Touch Switch Using OP Amplifier

Surprise and Fun Revisited
Experiment of Electromagnetic Induction
Winking LEDs
Voice Level Meter
Buzzin' LED
Son of Buzzin' LED

Testing and Measuring Circuits
Audio Signal Tracer
Metal Detector
Rain Detector
Burglar Alarm
Temperature-Sensitive Audio Amplifier

Learn Basics More
A Basic of Control Volume
Emitter Follower
Basic Operation of Zener Diode
Zener Voltage Checker
Zener Voltage Checker II
Basic Photo-Transistor Operation
Voltage Drop Circuit by Means of Diodes
Experimentation of Capacitor
Temperature Characteristic
Darlington Circuit (Touch Sensor)
Edge-Trigger Circuit
RC Type Differentiating Circuit
Switch Matrix Circuit
Memory Backup Circuit
Power on Reset Circuit
Constant-Voltage Circuit (Fixed Output)
Constant-Voltage Circuit (Variable Output)
A Rectifier Circuit by Diode Bridge
AGC Circuit Using a Single Transistor
Upper/Lower Limiter Circuit Using OP Amplifier
Window Comparator II

Amusement on Sound
Multi-Tone Siren
Digital Rhythm
Two-IC Electronic Organ
A Water Service Pipe Sound
Electronic Klaxon
Sound Machine III
Sound Wave Varying with Light Intensity
Player Organ
Sound of Passing Siren
Light Source Sensing Circuit by Sound
Electronic Piano Circuit
Whistle Generating Circuit
Space Gun
Car Horn

More Radio Circuits
Morse Code Transmitter
Broadcasting Organ
FM Transmitter (FM Wireless Microphone

To The Game World
Quiz Winner Detector
Reflex Nerve Test Game
Shooting Game II
Shot In The Dark II
Sound Quiz
Stop the Seven
High-Power Switch
"Lockout, Mr. Blackbeard!" Game
Russian Roulette
Mole Hitting Game
"Janken" Game
Ping-Pong Game

More Adventures in OP Amplifier Circuits
Voltage Controlled Amplifier
V-F Converter
F-V Converter
F-V Converter II
White Noise Generator
Sweep Generator
Multiple-Function IC Project
Sound Alarm
A Sound of Ripples
Photo Organ
Vibrato Organ

More About Oscillation
Phase Shift Oscillator
Wide Range Audio Frequency Oscillator
Sawtooth Wave Oscillator II
Three Phase Oscillator
Wien-Bridge Oscillator
Ramp Wave Generator
Digital Sine Wave Generator
Frequency-Variable Sine Wave Generator
Sine Wave Oscillator Using D-A Converter
RC Phase-Shift Oscillator
Two Sine Waves with Different Phases
One-Shot Multivibrator Using IC 555
One-Shot Multivibrator Using J-K Flip-Flop
One-Shot Multivibrator Using OP Amplifier
Shakehands of Analog and Digital
Pulse Number Modulation Light Dimmer
Pulse Width Modulation Light Dimmer
DC-DC Converter Using the C-MOS Oscillator
Photometer with Digital Display
Pulse Width Modulation Light Dimmer II
Voltmeter

Getting Closer to Computer
Full Adder
Decimal to Binary Encoder
Binary to BCD
Octal to BCD
Hexadecimal to BCD
3-Bit Shift Register
BCD-To-Decimal Decoder
More Digital Circuits
4-Input Data Selector
AND/OR Circuit Using OP Amplifier
XOR Using OP Amplifier
Time Sharing Display of LEDs
LED Lighting-Duty Varying Circuit Using One-Shot Multivibrator
LED Blinking-Cycle Varying Circuit Using Astable Multivibrator
LCD Static Drive Circuit
LCD Dynamic Drive Circuit
Testing LCD Display Response
LED Drive by 4 Switches
Flashing LED by Preset Number
Digital Timer (1 to 7 Minutes)
Sound Timer
Programmable Timer with Down Counter

Amusement in Electronic Circuits
Revolving Light
Photo Switch
Door Chime
Visitor Sensing Chime Using Photo-Transistor
Touch VCO
Sound Tuning Circuit
Crossing-Bell Sound Generator
Turn Indicator
Staircase Light Switching Control Circuit
Pseudo Candle Circuit
Lie Detector
Light Sensing Circuit
Automatic Lighting LED
Sound Sensing LED
Illumination Lamp
Intercom
PIP Sound Interphone
Electronic Volume
Pedestrian Signal
Time Counter
Led Display Counting Up/Down Circuit
An Electronic Pendulum
Staircase Light Switching Control Circuit II
Lamp Brightness Control Circuit
Illumination Circuit with 4-LEDs
A Simulated Car Winkers

Testing and Measuring Circuits
Battery Checker
Conductivity Tester
Transistor Checker
Three-Step Water Level Indicator
Tachometer
Battery Checker II
Digital Illuminometer

Software Projects
Light LEDs
Light On/Off LEDs
A Binary Counter-Increment Value by ADD Instruction
A Binary Counter-Decrement Value by SUB Instruction
Light LEDs Sequentially with AND Instruction
Light LEDs Sequentially with OR Instruction
Turn On and Off LEDs Sequentially with XOR Instruction
Moving LEDs Light with ROL Instruction
Moving LEDs Light with ROR Instruction
Night Rider's LEDs with ROL/ROR Instructions (1)
Night Rider's LEDs with ROL/ROR Instructions (2)
Binary Counter with INC Instruction
Binary Counter with DEC Instruction
Sound Do as Do, Re, Mi
Sound a Series of Musical Scale
Let's Input Data to Program
Hidden Key Triggers Sound and Turns All LEDs On
Stacked MOV Instructions
Changing Order of LEDs by Switch
A Musical Scale Sound by S1 Key
Arithmetic Addition of of Two Binary Values
Arithmetic Subtraction of Two Binary Values
Arithmetic Multiplication of Two Binary Values
Arithmetic Division of Two Binary Values
Displays Number 0 to 9 on 7-Segment LED (2)
Change Order of Numbers Display on 7-Segment LED (2)
Switches S1-S4 Light Hex Number On 7-Seg LED
8-Key Organ
Lighting Spade, Diamond, Heart, and Club on the LCDs Display (Basic)
Lighting Spade/Heart and Diamond/Club on the LCDs Display
Lighting Spade, Diamond, Heart, and Club by Static Drive Circuit
Lighting Spade, Diamond, Heart, and Club by 1/2 Duty-1/2 Bias Circuit
Lighting Spade/Diamond and Heart/Club by 1/2 Duty-1/2 Bias Circuit
Lighting Spade/Diamond and Heart/Club Alternately by 1/2 Duty-1/2 Bias Circuit
Lighting Spade, Diamond, Heart, and Club by 1/2 Duty-1/2 Bias Circuit
Results of Logical Operations AND, NAND, OR, and NOR
Results of Logical Operations XOR and XNOR
Results of Logical Operations AND/NAND with 4-Switch Entry
Results of Logical Operations with OR/NOR 4-Switch Entry
Results of Logical Operations with XOR/XNOR 4-Switch Entry
Logical AND/NAND Gate for Driving External Circuit
Logical OR/NOR Gate for Driving External Circuit
Logical XOR/XNOR Gate for Driving External Circuit
Find a Leading Edge of Input Pulse
Finding a Trailing Edge of Input Pulse
Finding a Leading and Trailing Edge of Input Pulse
A Pulse Stretcher
Starting a Delayed Pulse
Pulse Stretcher By Counting a Clock
Counting External Pulse To Advance Decimal Counter
Displays Number 0 To 9 on 7-Segment LED (1)
Change Order of Numbers Display on 7-Segment (2)
Counts an External Clock (1)
Counts an External Clock (2)
Counts an External Clock (3)
Counts an External Clock (4)
Counts an External Clock (5)
Counts an External Clock (6)
3-Minute Timer
Multi-Function Timer (1)
15-Minute Timer with 7-Segment Display
Multi-Function Timer (2)
Digital Organ with PHOTO-TRANSISTOR (1)
Digital Organ with PHOTO-TRANSISTOR (2)
Digital Volume Changer (1)
Digital Volume Changer (2)
Digital Volume Changer (3)
Digital Volume Changer (4)
Digital Volume Changer (5)
Illumination Controlled by PHOTO-TRANSISTOR (1)
Illumination Controlled by PHOTO-TRANSISTOR (2)
Illumination Controlled by Oscillator and PHOTO-TRANSISTOR (1)
Illumination Controlled by Oscillator and PHOTO-TRANSISTOR (2)
Illumination with Speed Control (1)
Illumination with Speed Control (2)
Sawtooth Waveform Generator
Triangular Pulse Generator
Digital Level Indicator
Digital Lux Meter (Display In Binary)
4-Bit A/D Converter (Display In Binary)
4-Bit A/D Converter (Display In Hexadecimal On 7-Segment LED)
Digital Lux Meter (Display In Hexadecimal)
Audio Level Meter
Audio Level Meter with Peak-Holding Capability
Lighting Sign Board
Digital Dice
Digital Roulette
Digital Slot Machine
Up/Down Counter
Digital Metronome
Frequency Counter
Dynamic Lighting of 7-Segment LED
Lighting LED with Pulse Width Modulation
Majority Logic Gate (2)
Lighting LCD Segments by Static Drive
Digital Buzzer
Rhythm Box (1)
Rhythm Box (2)
Rhythm Box (3)
Rhythm Box (3)

PL500 **500 In 1 Advanced Electronics Learning Lab With Advanced Course Manuals** **$169.95**

AM/FM/SW Radio Learning Kits

- ✔ Learn to build your own AM, AM/FM or SW radio!
- ✔ Discover how radios work!
- ✔ Listen to the results!
- ✔ Safe solderless assembly!

KIT

AM2 AMFM7 SR3

As the "Little Brothers" to our 130 In 1 Lab Kit (PL130, Page-46) our Radio Learning Kits teach you the fundamentals of modern radio theory and operation, and give you a working radio when you're done! There's nothing like the feeling of accomplishment when you get all done, plug in the battery, and hear it work! Yes, you did it yourself! Our Radio Kits are available in AM Broadcast, AM/FM Broadcast, and AM Shortwave models. Take your pick! All operate on a standard 9V battery.

AM RADIO

Our AM2 AM Radio kit uses two transistors, 4 resistors and 5 capacitors including a variable capacitor to provide a highly sensitive AM Broadcast Radio. It covers 520 KHz to 1625 KHz and is easy to assemble with safe, solderless connections. The 18 page comprehensive learning and assembly manual covers everything from theory to parts identification and operation.

AM/FM RADIO

Our AMFM7 AM/FM Radio kit is the next step up from our AM2 kit above. It features the same quality AM radio and adds a factory assembled and aligned FM tuner to cover the 88 MHz to 108 MHz FM broadcast band. Utilizes 2 transistors, 5 resistors, 6 capacitors, 1 diode, and 1 coil to provide reception in either band. The AMFM7 is easy to assemble with safe, solderless connections. The 20 page comprehensive learning and assembly manual covers everything from theory to parts identification and operation.

AM SHORTWAVE

Our SR3 Dual Band AM Shortwave Radio Kit takes you away from the local AM/FM broadcasters and brings you into the exciting world of Shortwave Radio Listening (SWL)! The preassembled and aligned tuner section adds to the 2 antennas, 4 capacitors, 4 resistors, 1 transistor, and 1 variable capacitor to provide a sensitive Shortwave Radio covering 6 MHz to 8 MHz and 12 MHz to 18 MHz. The SR3 is easy to assemble with safe, solderless connections. The 20 page comprehensive learning and assembly manual covers everything from theory to parts identification and operation. Operates on a standard 9V battery (not included).

AM2	**AM Radio Kit With Comprehensive Learning Manual**	**$12.95**
AM/FM7	**AM/FM Radio Kit With Comprehensive Learning Manual**	**$14.95**
SR3	**AM Dual Band Shortwave Radio Kit With Comprehensive Learning Manual**	**$14.95**

Entry Level Learning Kits

- ✔ Learn the basics of electronics and electricity!
- ✔ Discover how to listen to AM radio without a battery!
- ✔ Understand and build a working motor!
- ✔ Learn how and why bells work...and build one!

Start With The Basics!

Go back in time and discover how radio was first received! Learn the basics of electric motors including forward and reverse action. And while everyone has heard them, learn exactly how a bell works, and then build one yourself! These beginner kits are ideal for the inquisitive mind that wants to know "how and why it works". No previous experience in electricity or electronics is required, and all kits use safe, solderless connections.

CRYSTAL RADIO SET

The crystal radio was discovered in 1901. It is still the basis of modern-day radio and communications equipment and lives on in a wide variety of radio systems. Go back in time, and learn how radio detection was first done! Without a battery or power supply, you will hear AM broadcasts with your Crystal Radio Set! Crystal radios don't need a power supply - they're powered by the radio waves broadcast by the radio station and are endlessly fascinating because of their simplicity and their complexity! They contain so few parts yet display so many concepts. The comprehensive 16 page manual covers everything from how it works to why it works, with illustrated assembly instructions. Assembly is easy with solderless connections, and no previous electronic experience is necessary. Relive history with a Crystal Set today!

MOTOR ACTION KIT

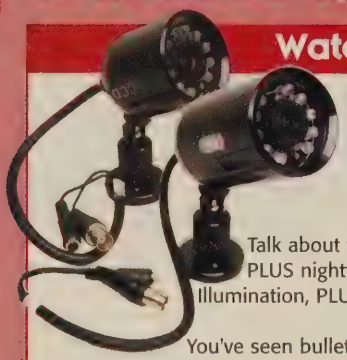
Learn the basics of an electric motor with our MA1 Motor Action Kit. Learn what makes motors spin, how to control forward and reverse in a motor, and then build one that works! Includes a fan blade and a color disk to learn how to mix color with a spinning disk! This is a great kit for the kids and for the beginner to learn just what makes the world go round! Easy assembly with solderless connections. Requires two AA batteries (not included).

BELL ACTION KIT

Ding-a-ling...is that a bell? Yep, we've all heard them, but do you know exactly how they work? Our BA1 Bell Action Kit is a perfect learning kit for the beginner or the curious! Learn what makes a bell ring, explore how electromagnetism is used, and how you can change the ringing characteristics of a bell! This kit is fun and safe, using solderless connections. Requires two AA batteries (not included).

CS2	**Crystal Radio Kit**	**$9.95**
MA1	**Motor Action Kit**	**$8.95**
BA1	**Bell Action Kit**	**$8.95**

Waterproof Color & B&W Bullet Cameras with Built-In IR Illumination!



Yes...We Said COLOR Plus IR Illumination!!

- ✔ Day & night monitoring! CCD color image automatically changed into B/W image in the dark!
- ✔ High output built-in IR illumination for B&W nighttime use
- ✔ Weatherproof black anodized aluminum housing for outdoor use
- ✔ Fool-proof interfaces...BNC video & power

Wired & Tested

Talk about the best of both worlds! High quality COLOR video camera, PLUS nighttime B&W video camera, PLUS built-in high output IR Illumination, PLUS auto mode switching...all in one unit!

You've seen bullet cameras before, but never like this. Yes, it's a high quality color CCD camera during the day. Once the light level falls below minimum requirements it automatically changes to an IR B&W camera, and turns on the built-in TEN IR illuminating LED's to see in the dark! Now you don't have to sacrifice color operation because you need total darkness coverage at night. You can have both, in one camera!

SPECIFICATIONS

	CCD309	CCD308
Pick-up element:	1/4"	Sony 1/3"
Number of pixels:	512 x 492	542 x 492
Resolution:	350 TV lines	420 TV lines
Min. illumination:	0.0 Lux	0.0 Lux
S/N ratio:	46dB	46dB
Electronic shutter:	1/60 to 1/100,000	1/60 to 1/100,000
Load Impedance:	75 ohm	75 ohm
Standard board lens:	3.6mm, F2.0	6mm F1.8
Power:	DC 12V 150mA	DC 12V 180mA
Dimensions:	2.0" W x 3.2" L	2.0" W x 3.2" L

That's not all! Just look at the case. Jet black solid aluminum case that's WATERPROOF to IP57 standards! Yes, that includes temporary complete immersion in water! All angle, built-in swivel mount provides you with any mounting configuration you may need. Connections are simple. No solder connections needed; the waterproof cable terminates video with a professional BNC female connector, and provides a standard 2.1mm DC power connector. Simply plug it in!

It only gets better... Take the same camera and with a mere switch closure get 2X digital zoom! That's right, our CCD321 also includes 2X digital zoom, and we even provide a high quality pushbutton switch for it! You'll be amazed; set up the camera for your wide angle view and with a click of the switch you have 2X! And you do that at the cable end, not at the camera! Don't need color but want the same high-end housing and built-in IR Illumination in a Hi Resolution B&W unit? No problem, use the CCD308 *(I set one of these up for our webcam, pushed the button, and saw one of our people sleeping at the bench!)*

CCD309	**Waterproof Color Bullet Camera with Built-in Auto Switching IR Illumination**	**$169.95**
CCD308	**Waterproof B&W Bullet Camera with Built-in Auto Switching IR Illumination**	**$109.95**
CCD321	**Waterproof Color Bullet Camera with Built-in Auto Switching IR Illumination, 2X Remote Zoom**	**$239.95**
AC125	**110VAC Power Supply**	**$9.95**

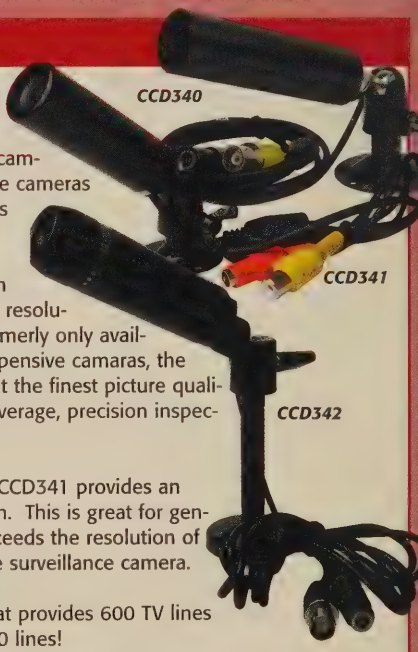
High-Res Weatherproof "Lipstick" Cameras

Wired & Tested

- ✔ Three models: color Super EX-View, B&W hi-res, or B&W Super-HAD
- ✔ Small lipstick design
- ✔ Universal Swivel Mounting Bracket
- ✔ Weatherproof, Suitable for Outdoor Use!
- ✔ Simple Plug-In Connections

Welcome To The Super Resolution Department!

Looking for the highest quality "lipstick" or "bullet" cameras, but don't want to pay a fortune? These are the cameras for you! All feature Sony manufactured CCD sensors for the highest quality and reliability.



SPECIFICATIONS

	CCD340	CCD341	CCD342
Format:	NTSC Color	EIA B&W	EIA B&W
Pick-up element:	Sony 1/3" EX-View	Sony 1/3"	Sony 1/3" HAD
Number of pixels:	768x494	512x492	768-494
Resolution:	480 TV lines	420 TV lines	600 TV lines
Min. Illumination:	0.05 Lux	0.1 Lux	0.2 Lux
S/N ratio:	>50dB (AGC off)	>46dB (AGC off)	>48dB (AGC off)
Electronic shutter:	1/60 - 1/100,000	1/60 - 1/100,000	1/60 - 1/100,000
Impedance:	75 ohm	75 ohm	75 ohm
Lens:	3.6mm	3.6mm	3.6mm
Connectors	BNC/Power	BNC/Power	BNC/Power
Power:	DC 12V/130mA	DC 12V/120mA	DC 12V/120mA
Dimensions:	3" L x 0.8 "H	3" L x 0.8 "H	3" L x 0.8 "H

Sony EX-View color CCD sensor in the CCD340 provides the highest resolution and sensitivity available. Formerly only available in larger and much more expensive camaras, the EX-View is perfect when you want the finest picture quality possible. Great for medical coverage, precision inspection, or detailed surveillance use.

The standard B&W sensor in the CCD341 provides an above-average 420 line resolution. This is great for general purpose use and actually exceeds the resolution of the typical low cost black & white surveillance camera.

The CCD342 is a super-high resolution Black & White camera designed with a Sony CCD Super HAD sensor that provides 600 TV lines of resolution. This is perfect where exacting fine detail is required and color is not necessary. Yes, we said 600 lines!

All cameras feature a waterproof housing and a universal swivel mount. Video is brought out to a BNC female and power is brought out to a standard 2.1mm female connector. If you're looking for high quality and performance but don't want to pay a fortune, these are for you!

CCD340	**Color Super Hi-Res Lipstick Camera, EX-View CCD Sensor**	**$189.95**
CCD341	**B&W Hi-Res Lipstick Camera, Sony CCD Sensor**	**$69.95**
CCD342	**B&W Super Hi-Res Lipstick Camera, Sony Super-HAD Sensor**	**$99.95**
AC125	**110VAC Power Supply**	**$9.95**

Next Generation IR Illuminated Waterproof CCD Cameras

Wired & Tested

- ✔ Super long range IR illumination!
- ✔ Waterproof to 50M!
- ✔ Attractive, scratch-proof, non-corrosive brass housing
- ✔ Fool-proof interfaces...BNC video & power
- ✔ Universal mount

Latest Long Range IR Illumination Technology... SEE IN THE DARK!

SPECIFICATIONS

	CCD328	CCD329
Pick-up element:	1/3" super	1/3" super
Number of pixels:	512 x 492	512 x 492
Resolution:	380 TV lines	380 TV lines
Min. illumination:	0.0001 Lux /F2.0	0.0001 Lux /F2.0
S/N ratio:	>50dB	>50dB
Electronic shutter:	1/60 to 1/100,000	1/60 to 1/100,000
Video output:	75 ohm	75 ohm
Video connection:	BNC female	BNC female
IR Illumination:	21 high output LED	49 high output LED
IR Range:	60 feet	90 feet
Lens:	4.3mm F2.0	4.3mm F2.0
Power:	DC 12V 190mA	DC 12V 540mA
Power connection:	2.1mm female	2.1mm female
Dimensions:	2.0" W x 2.75" L	2.75" W x 3.2" L

These brand new cameras represent the latest technology in built-in IR illumination! New for 2004, the CCD328 and CCD329 offer total darkness IR illumination range longer than was ever possible before! How long? How does 60' and 90' sound?! They feature the newest LED devices that run much cooler as compared with the earlier generation IR LEDs. This coupled with an exclusive power control technology gives you years of long-life, non-degraded operation.

The cameras utilize the latest super sensitive 1/3" color CCD sensors and a built-in 4.33mm lens. The lens is surrounded by one of these new IR illumination LEDs with an automatic light sensor to automatically turn them on and off. The CCD328 features 21 IR LEDs to provide an illumination range of 60 feet, while the CCD329 features a whopping array of 49 IR LED's to provide a range of 90 feet! All IR night modes are automatically switched to B&W!

It gets even better! The camera is totally waterproof and submersible to 50 meters! The housing is constructed of brass, and all fittings are non-corrosive. The video/power pigtail is sealed to 50m depth and is made of non-stretchable material to withstand heavy underwater pressure! The low-heat power controlled LEDs provide fog-free operation.

The sleek brass housings have a heavy, dark gray, scratch-proof powder coating to match any decor and to give you a long lasting attractive installation. The universal mount swivels for all mounting possibilities. Video connection is a standard BNC female, and the 12VDC power connection is a standard 2.1mm female power connector. *(These are great! We put one outdoors to watch our dark parking lot at night...incredible!)*

CCD328	**Waterproof Color Camera, 60' IR Illumination Range**	**$179.95**
CCD329	**Waterproof Color Camera, 90' IR Illumination Range**	**$199.95**
CCD12V	**110VAC Regulated Power Supply**	**$19.95**

Professional Long Range Outdoor Color IR Camera

The ULTIMATE Outdoor Low Light Camera!

- ✔ Extended IR illumination exceeds 150'!
- ✔ Weatherproof and gastight housing
- ✔ Wide temperature range 0°F to 200°F

If you're looking for a PROFESSIONAL quality outdoor camera with long distance IR illumination, this is it! The CCD330 is designed from the ground up to exacting outdoor performance specifications and can withstand the harshest environmental conditions with its custom outdoor housing.

The camera features a 1/3" Super View image sensor for the highest quality picture under the lowest lighting conditions. The front of the camera is surrounded with a large array of patented 4-leg IR high-power LED illuminators. When automatically activated by low light levels, these special illuminators provide an illumination distance that exceeds 150 feet! Combine all this with a specially designed 25mm f1.8 auto focus lens and a unique coating to prevent IR illumination focus shift, and you have the best of all worlds! Sealed housing is designed for weathertight, gastight, and fog-free operation from 0°F - 200°F without the use of fans or heaters! Can be mounted with any standard ¼ x 20 stud mount. A sealed compression fitting brings the cable out of the rear of the camera to a standard BNC female video connector and 2.1mm female 12VDC power connector.

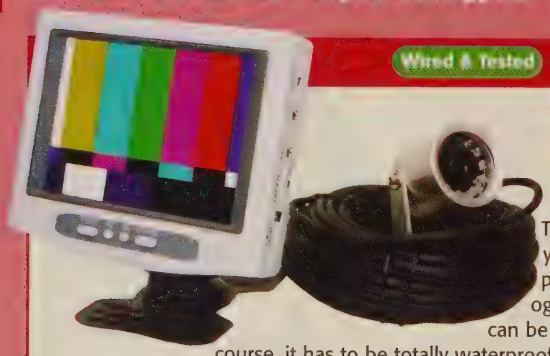
If you want the ultimate picture quality and the longest distance IR illumination, the CCD330 is the camera for you! *(We're going to mount one of these at the top of the light pole behind our building...but I can't find anyone here to shinny up the pole!)*

SPECIFICATIONS

Pick-up element:	1/3" Super View Sensor
Number of pixels:	537H x 505V
Resolution:	380 TV lines
Sensitivity:	.05 Lux, 0 Lux with IR on
S/N ratio:	Greater than 58 dB
Electronic shutter:	1/60 to 1/120,000 sec.
White balance:	2000-10,000°K
BLC:	More zones auto function
Gamma correction:	0.45
Sync system:	Internal
Video Output:	Composite 1.0V P/P at 75 ohm
Lens:	25mm/F1.8 auto adjusting focus
IR Illumination:	High-luminance LEDx12/condensing lens
IR wavelength:	850mm
IR distance:	Greater than 50m
IR triggering:	CDS activating at 10 Lux
LED life:	Greater than 20,000 hours
Waterproof level:	IP-66
Connectors:	Video BNC Female, power 2.1mm
Power:	DC 12V 450mA
Dimensions:	13" L x 3.75" D

Wired & Tested

CCD330	**Professional Outdoor Color Camera with Built-in 150' IR Illumination**	**$399.95**
AC125	**110VAC Power Supply**	**$9.95**



Wired & Tested

Vehicle and Underwater Color Camera Package

The Perfect Vehicle Kit!

- ✔ DSP waterproof color camera with built-in IR Illumination
- ✔ Automatic low light switching to B&W plus IR mode
- ✔ 5.6" color TFT monitor with switchable reverse vehicle mode
- ✔ Submersible to 150'

This package is a real beauty! What do you need for a perfect vehicle camera package? First, a compact DSP technology discreet appearance camera that can be mounted in virtually any location. Of course, it has to be totally waterproof in case you mount it outside the vehicle. Then you have to make it "see in the dark" with built-in infrared illumination! And finally, house it in a sealed aluminum anodized case with anti-fog glass!

CAMERA

TV System:	NTSC
Image Sensor:	1/4-inch CCD image sensor
Image Size:	4.57(H) x 3.9(V)mm
CCD Effective Pixels:	542(H) x 496(V)
Scanning System:	(NTSC): 525 lines, 60 fields/sec
SYNC System:	Internal
Sensitivity:	1 lux F1.2, 0 lux (IR ON)
Lens:	4.3mm/F1.8
Resolution:	380 TV lines
S/N Ratio:	Better than 56dB (AGC OFF)
White Balance:	Auto (3200-10000°K, 0 color rolling
Electronic Shutter:	1/60-1/120,000 sec.
Video Output:	1.0Vp-p composite video at 75 ohm
Gamma Correction:	0.45
Gain Control:	AGC
Water Resistance:	IP 68
Storage Temp:	-30°C to + 60°C
Operation Temp:	-20°C to +50°C
IR Illumination:	12 unit 840nM LED, 6000 Hrs
View Angle:	70°
Beam Spread:	30°
IR Distance:	10 meter
Power Source:	Cam: 12VDC@ 90mA; IR: 12VDC@180mA
Construction:	Aluminum anodized finish, anti-fog glass
Dimensions:	49mm x 79mm
Weight:	.41 lbs

LCD TFT MONITOR

Screen Size:	5.6" Diagonal
Pixels:	224,640 dots
Dot Pitch:	0.120mm(H) x 0.36mm (V)
System:	NTSC/PAL selectable
Input Signal:	1.0Vp-p composite video at 75 ohm
Video Inputs:	(2) Mini video/audio inputs, (1) DIN input
Operation Temp:	-5°C to +50°C
Storage Temp:	-25°C to +70°C
Power Source:	12VDC, 6W max
Dimensions:	160mm x 133mm x 31.4mm
Weight:	465g

Now the clincher...the camera is waterproof to 150'! Yes, you can submerge it to the bottom of the lake, and find that shipwreck!

Now there's the monitor! A state of the art 5.6" (Diagonal) color TFT LCD multifunction monitor! You plug the DIN plug from the camera directly into the TFT monitor. PLUS, the monitor has TWO separate video/audio inputs! These are selectable through on-screen menus. Using it in a vehicle and need reverse image for rear view observation? No problem; that is also selectable directly on the monitor AND via on screen menus, as is brightness, contrast, color, and hue. Yes, we mentioned audio; two break-out video/audio cables are also included with the monitor!

The monitor is powered by 12VDC and a 110VAC power adapter is included. Of course there is a very handy multi-position swivel mount for the monitor, complete with a quick release. If you're looking for a GREAT value, and a GREAT package, this is it! Color DSP Camera Underwater to 150', 2 Channel TFT Color Monitor, IR Illumination, Auto IR Switching, and 65' of cable...all at a super price! *Install this behind your vehicle, and you can see what you back into...before you back into it!*

CCD343 **Vehicle & Underwater Camera Package, Fully Assembled & Tested** **$379.95**

5.6" Color TFT Monitor

Wired & Tested

- ✔ Lightweight and small for portable and mobile applications
- ✔ Reverse image mode for vehicular use
- ✔ Two channel A/V input!
- ✔ Universal mount fits any application

For Your Vehicle, For Your Desk, Anywhere!

SPECIFICATIONS

Screen Size:	5.6" Diagonal
Pixels:	224,640 dots
Dot Pitch:	0.120mm(H) x 0.36mm (V)
System:	NTSC/PAL selectable
Input Signal:	1.0Vp-p composite video at 75 ohm
Video Inputs:	(2) Mini vid/audio inputs, (1) DIN input
Operation Temp:	-5°C to +50°C
Storage Temp:	-25°C to +70°C
Power Source:	12VDC, 6W max
Dimensions:	160mm x 133mm x 31.4mm
Weight:	465g

Everyone asked for a nice inexpensive TFT monitor for CCTV use. They said it had to deal with reverse sweep for rear vehicle observation, and it needed multiple channel inputs. Sounds impossible? Nope, here you go!

This is a really cute 5.6" color TFT high resolution monitor. It has two channel input and it even has a mirror reverse mode for vehicle applications! Comes with a very handy swivel mount that works in virtually any mounting situation, and includes the AC power adapter, and two video/audio input cables (Dual RCA to 3.5mm video/audio mini phono). A great monitor to keep the kids happy in the back seat! *I personally keep one of these at my desk to monitor the webcam feeds in the building...I never use it to watch movies and music videos on the 2nd channel while I'm working, really, I don't!!!*

CCM501 **5.6" Color TFT Video Monitor, 12VDC, Factory Assembled & Tested** **$229.95**

www.ramseykits.com

LOOKING FOR NEW CCD CAMERAS?
Check out our website for the latest technology and the latest models!

Color and B&W Quad/Sequential Switchers

Wired & Tested

- ✔ Full Motion Quad Display
- ✔ Automatic Sequential Switching
- ✔ Professional Quality at a Bargain Price!

Full Motion Quad Display! Color or B&W

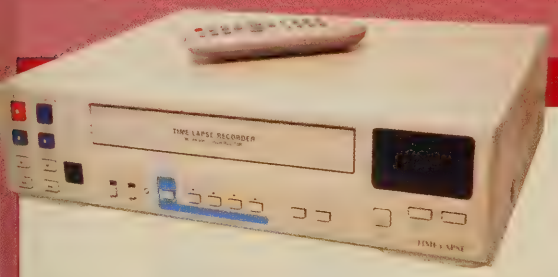
CCDS311

This color, professional quad processor/switch really amazed us! It's simple to set up, but has all the power and features you'd expect from units costing hundreds more. Plug in up to four color cameras or video sources, and watch them displayed in FULL MOTION, in color, on one screen! Not sure which camera is which? No problem! Camera ID text generators name each camera view, plus the time! Want more? Has one touch freeze frame of any of the inputs, auto freeze and alarm at loss of signal, on-screen user menu provides all setup, ID generator, level and format functions. Plus independent title settings, 8 characters per channel with 3 character colors based on 16 million true colors, built-in bar generator for monitor setup, and VCR in to support 2x2 Zoom-In and freeze function for playback. It doesn't get much better than that!

CCDS310

Does all this overwhelm you, when all you need is a high quality monochrome quad/sequential switcher? We've got you covered there too! Our CCDS310 is similar to the color switcher above, but without all the bells and whistles. Made specifically for monochrome CCTV cameras or video sources, it provides the same quad display of up to four sources. Manual push button full screen selection of any input, quad display, or sequential display is all controlled from the front panel. Each input has separate video gain adjustments to set levels for a perfect view. Both units feature professional BNC video input connections.

CCDS311	**Professional Color Quad/Sequential Switcher**	**$269.95**
CCDS310	**Professional B&W Quad/Sequential Switcher**	**$119.95**



Wired & Tested

960 Hour Time Lapse VCR

- ✔ 24 Hours real-time recording!
- ✔ 1280 Hours time lapse recording (with T160 tape)
- ✔ DLC drum for increased head life
- ✔ Records audio as well as video (in 2, 6, 18 & 24 Hr modes)
- ✔ IR remote, self diagnosis, menu driven

Color Time Lapse With Audio!

Finally, Time Lapse recording made affordable for everyone, and without sacrificing a bit of quality! Standard VHS tapes are used in our CCT960. And get ready for this one...on a standard T-120 tape you can record up to 960 hours of video! Use a T-160 tape and you can record a whopping 1280 hours on one tape! And you can play those back in the standard 120 or 160 minute modes! Things may tend to move a tad bit quickly though! No problem; you can slow down the playback to the corresponding record time for real time images.

And it gets even better! The CCT960 even records audio in the continuous modes. That's right, you can have up to 24 hours of color video and audio time lapse recording on one T160 tape! This is not a modified VHS VCR, but one made from the ground up for time lapse and security use. Heavy duty 4 Head DLC drum gives you increased head life for the continuous duty operations normally used with these units. On-screen menus provide full control and setup functions, and are accessed by the IR remote control included. You can program timed start and stop recording, or external alarm input recording. We've got one of these running on our webcam in the 960 hour mode, and it's incredible how fast we get stuff done! (Or does it take us 960 hours to do something that should take 2!)

Hours T-120	Hours T-160	Record Fields/Sec	Record Interval	Audio Recording	Tape Motion
2 (SP)	2.67	1/60 Sec.	60	Yes	Continuous
6 (EP)	8	3/60 Sec.	60	Yes	Continuous
18 (EP)	24	3/60 Sec.	20	Yes	Continuous
24 (SP)	32	0.22	5	Yes	Continuous
36 (SP)	48	0.32	3.33	No	Intermittent
48 (SP)	64	0.42	2.50	No	Intermittent
72 (SP)	96	0.62	1.6	No	Intermittent
96 (SP)	128	0.82	1.25	No	Intermittent
120 (SP)	160	1.02	1	No	Intermittent
168 (SP)	224	1.42	0.71	No	Intermittent
240 (SP)	320	2.02	0.5	No	Intermittent
360 (SP)	480	3.02	0.33	No	Intermittent
480 (SP)	640	4.02	0.25	No	Intermittent
720 (SP)	960	6.02	0.17	No	Intermittent
960 (SP)	1280	8.02	0.13	No	Intermittent

SPECIFICATIONS

Recording		
Recording method	Dual-azimuth 4-head rotating helical scanning system	
Audio recording	In 2, 6, 18 and 24 hour modes	
Tape speed	33.35m/sec (2 hour mode)	
Specified video cassette tape	VHS 1/2 inch video cassette tape	
Recording/playback time	2/6/18/24/36/48/72/96/120/168/240/360/480/720/960 hours (when using T-120 tape)	
Fast forward/rewind time	Within 3 minutes (when using T-120 tape)	
Television system	NTSC color TV system	
Video		
Recording method	Luminance signal: FM recording ~0.8V Down-converted subcarrier phase shift system	
Video input	1 Vp-p, BNC, 75 ohm, unbalanced	
Video output	1 Vp-p, BNC, 75 ohm, unbalanced	
Horizontal resolution	Black & white mode	300 lines
	Color mode	250 lines
Audio		
Input	RCA pin jack more than 47k ohm -8.8dBm, unbalanced	
Output	RCA pin jack less than 1.5k ohm -7.8dBm, unbalanced	
Microphone input	-60 dBs, 3.5mm mini jack, 10k ohm, unbalanced	
Connectors		
Alarm input	DC 4~5V(Open), DC 0~0.8V(Closed)/5.7k ohm	
Alarm output	DC 4~5V(H), DC 0~0.8V(L)/5.7k ohm	
Panic input	DC 4~5V(Open), DC 0~0.8V(Closed)/5.7k ohm	
End output	DC 4~5V(H), DC 0~0.8V(L)/5.7k ohm	
Warning output	DC 4~5V(H), DC 0~0.8V(L)/5,7k ohm	
Series input	DC 4~5V(H), DC 0~0.8V(L)/5.7k ohm	
Series output	DC 4~5V(H), DC 0~0.8V(L)/5.7k ohm	
Switch output	DC 4~5V(H), DC 0~0.8V(L)/5.7k ohm	
Common	OV(GND)	
Other Specifications		
Operating temperature range	41°F - 104°F	
Operating humidity range	80% or less	
Power requirements	AC 90-240V~ , 60hz	
Power consumption	17W	
Dimensions	360(W) x 90(H) x 289(D)	
Weight	approximately 4.3kg	

CCT960	**960 Hour Color Time Lapse VCR, Factory Assembled & Tested**	**$399.95**

Wired & Tested

The Cubes! World's Smallest Video Transmitters

The Size Of A Quarter? You Bet!

- ✔ Crystal clear transmission
- ✔ Transmits on CATV channel 59
- ✔ Ultra small for ANY application!

Perfect video transmission from a transmitter you can hide under a quarter and only as thick as a stack of four pennies! Transmits color or B&W with fantastic quality - almost like a direct wire connection to any TV tuned to cable channel 59. Crystal controlled for no frequency drift with performance that equals law enforcement models that cost hundreds more!

Basic 20 mW model transmits up to 300' while the high power 100 mW unit goes up to 1/8 mile. Units run on 9 volts and hook up easily to most any CCD camera module. Any of our camera modules have been tested to mate perfectly with the Cubes and work great with solid, trouble-free operation! Fully assembled and tested - just hook-up power and you're on-the-air with a killer system! *These new quarters are ugly!*

C2000	**Cube Video Transmitter, Factory Assembled and Tested**	**$49.95**
C2001	**High Power Cube Video Transmitter, Factory Assembled and Tested**	**$79.95**

Infrared Illuminator

KIT

- ✔ Allows you to "See In The Dark"!
- ✔ Great for Do-It-Yourself camera projects
- ✔ Amazing illumination!
- ✔ Works with B&W CCD camera
- ✔ Operates on 12VDC

Don't Let Darkness Dim Your View!

Imagine being able to see in total darkness! Well, while you can't, virtually any black & white CCD camera can...with a little help from some invisible infrared light!

It's easy with our IR1 Infrared Illuminator! A huge array of 24 high intensity infrared LEDs illuminate a good size area so the camera "thinks" it's daylight! There's nothing magical about it; CCD sensors are sensitive to IR light that you can't see, so to the camera the area seems lit perfectly! The illumination provided is about the same as you would expect from a very bright wide beam flashlight.

The illuminator runs on 12-15VDC and is built on a convenient PCB ready to install wherever you need it. Because the light is invisible to the human eye, the kit will not be detected, and can be easily disguised! Order our AC125 power adapter for a simple plug-in connection.

IR1	**IR Illuminator Kit**	**$29.95**
AC125	**110VAC Power Supply**	**$9.95**

KIT

Automatic Sequential Video Switcher

- ✔ Automatic Switching of 4 Video Sources
- ✔ Variable Speed
- ✔ Manual Camera Selection

Don't Miss A Beat... Watch 4 Cameras At Once!

Now you can monitor up to four video cameras or other video sources on one video monitor. The AVS10 will automatically sequentially switch between inputs one through four, and display the output on a video monitor. Perfect for multiple video camera installations, stores, household surveillance systems, and more. Has (4) RCA inputs for video input, and one RCA output connector, so you can use standard consumer video cables. Variable front panel timing control allows you to change the viewing time for each sequential view. Change it from fast to slow depending on your requirements! If you see a view you need to study you can manually select that input for constant monitoring. Case measures 5"W x 1½"H x 5¼"D. *(If you don't want to build it, see Page 53 for Quad units!)*

AVS10C	**Automatic Video Sequencer Kit With Case**	**$44.95**
AC125	**110VAC Power Supply**	**$9.95**

VHF TV Transmitter

KIT

- ✔ Transmits on Channel 2-6
- ✔ Broadcast your VCR Throughout Your House
- ✔ Learn While Building!

Learn How A TV Transmitter Works!

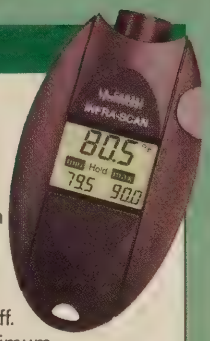
This great little kit allows you to send any audio and video source (like a VCR or TV camera) to any TV set for up to 300 feet. Have your own TV station with YOU playing producer and YOUR selection of programming! And, the nice feature of this kit is that you'll learn just how a TV transmitter works; we explain every part of the circuit from A to Z. Tunable to any TV channel 2 - 6, runs on 12 VDC, and accepts standard audio and video signals. Includes an attractive custom case for a finished look!

TV6C	**VHF TV Transmitter Kit With Case**	**$39.95**
AC125	**110VAC Power Supply**	**$9.95**

Infra-Red Thermometer

Wired & Tested

- ✔ Easy contact-free temperature measurement
- ✔ Momentary or continuous measurement
- ✔ Last measurement data hold/display
- ✔ Continuous capture of min/max values
- ✔ Large backlit LCD display



Ready, Aim... And Measure!

This beauty is one of the neatest thermometers we've ever seen! You can measure the temperature of anything merely by pointing an IR beam of light at it! That's right, no contact, no sensors, no wires, glass, nothing but a beam of IR light! Is your motor running hot? Is your refrigerator cold enough? How cold IS that bottle of soda? If you want to know, just aim and push the button. The temperature is immediately displayed on the backlit LCD display! Last measurement is automatically held and stored until power-off. Measurements can be momentary or continuous, with minimum and maximum temps held during measurement! You can't ask for much more than that in a handheld thermometer that is contact-free besides!

SPECIFICATIONS:	
Range:	-5°F to 575°F
Resolution:	0.1°F
Accuracy:	±1°F
Units:	°F or °C
Dist to measurement spot:	6:1
Ambient temp range:	32°F to 104°F
Emission factor:	0.95
Power supply:	4 x LR44 cells
Battery life:	2000 measurements approx.
Dimensions:	2.25" x 1" x 4"

How does it work, you ask? Well if you really want to know, when making a temperature measurement the surface radiation of the object to be measured is evaluated using the principle of radiation thermometry. This is a purely passive process, i.e. no radiation is transmitted. But instead, only the natural electromagnetic radiation energy (heat radiation) that every body above a temperature of absolute zero (-273 °C) is used. The temperature can be determined very accurately from this radiation energy if the emission factor of the object being measured is known. We'll stop there, because we only have so much space for all this copy! Runs on 4 LR44 cells (included) for a long life. If you want to know what the temperature is, check it out with the IR101! *(The bartender didn't care when I told him my "ice cold beer" was 47.3° so I showed him...he still didn't care!)*

IR101 **Infra-Red Thermometer** **$49.95**

RF Remote Control System

Wired & Tested

- ✔ Uses 433 MHz RF for wireless control!
- ✔ 4 channel remote controls multiple remotes!
- ✔ Master on/off controls all channels

Wireless Control, Great For Outdoor Holiday Light Displays!

Universal remote control doesn't get much easier than this! Plug the remote outlet in the wall. Plug the device into the remote outlet. Control the device with the RF remote control! The system operates with RF at 433 MHz so it doesn't have to have "line of site" like IR controls. Plus the remote has 4 selectable channels to control 4 separate functions. Each function can be from one to an unlimited number of remote outlets! The functions are coded into the remote with a 4-digit security code! Separate on and off buttons are provided for each channel. Plus, there is a master on/off that turns off ALL channels!

SPECIFICATIONS:	
Operating voltage:	120V ~ (60Hz)
Maximum current:	30 amps
Maximum power:	3600 watts
Frequency:	433 MHz
Operational range:	80 feet approx.
Remote functions:	4 numbered keys, on/off
Security code:	4-digit
Remote power:	2 x AA batteries

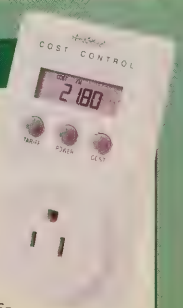
The system comes with one 4-channel remote and two remote outlets. There are a variety of programming options. One remote can control a number of outlets, multiple remotes can control the same outlets, or you can have any combination using 4 channels! Outlets are rated for indoor use. *(I use these for my holiday lights; it was a lot easier than finding the plugs each night!)*

RS204 **RF Remote Control Outlet System** **$39.95**

Power Cost Controller

Wired & Tested

- ✔ Cost monitoring and cost forecasting
- ✔ Just plug it in and you're all set!
- ✔ Stores data

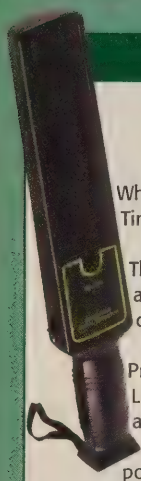


Efficient & Easy Monitoring Of Electrical Consumption!

How many times have you wondered exactly how much it costs to keep something running? Well now you can easily find out! Plug the PCC120 into any standard 110VAC outlet, plug the device or devices into it, and instantaneously measure its consumption! It doesn't get much easier than that! Monitor energy usage and view cost of operation of any device. Check your refrigerator efficiency, compare incandescent vs fluorescent bulbs, and much more. Enter in energy costs, and it will forecast operational cost on a daily, monthly and yearly basis! Displays power usage, current power consumption in watts, maximum load power in max watts, total energy consumption in total kilowatt hour, calculates cost of operation based on actual usage and kilowatt/hour cost, forecasts daily, monthly and yearly costs, and calculates the cumulative costs since startup or reset. An internal button cell powers the unit and stores data, making it non-dependent on AC power. *(I put one of these on one of the engineer's soldering irons to show him what it costs when he leaves it on EVERY NIGHT!)*

SPECIFICATIONS:	
Supply voltage:	120V ~ (60Hz)
Absolute max. loading rating:	1800W (15A)
Battery:	LR44, 1.5V Button Cell (included)
Accuracy:	±2W or ±2% whichever is greater

PCC120 **Power Cost Controller, Factory Assembled & Tested** **$39.95**



Wired & Tested

NEW!

Professional Hand Held Metal Detector Wand

- ✔ Protect yourself, family, & workers
- ✔ High quality, detects hidden metal objects
- ✔ Includes case and strap

Check Out Packages And People... Stay Protected!

Who would have thought there would be a need for a personal metal detector wand. Time has changed things and now we all have to take some basic precautions.

This professional quality metal detector wand is just like those used at the airports and other "entrance checks". Perfect for corporate security checks, body weapon checks, and especially handy to detect metal objects in sealed letters and packages.

Professional quality construction includes a power on/off rocker switch with a green LED to indicate power on and battery. When brought near a metal object a tone alert is heard, the green LED goes out, and a red 'detect' LED lights with the tone. The wand operates on a standard 9V battery (not included). There is a standard power connector for an external 9VDC supply for extended operation or to charge a 9V rechargable battery. An earphone jack is also provided to silence the built-in tone alert. If you're serious about the safety of you, your family, and your co-workers, this is an inexpensive solution for peace of mind. Includes a leatherette case with a belt loop and quick-release snaps and a nylon handle strap.

SPECIFICATIONS:

Power Requirement:	Standard 9V battery
Operating Frequency:	22KHz
Operating Current:	Less than 50mA
Operating Voltage:	7 to 9VDC
Controls:	On/off switch, earphone jack, external power jack
Operating Temperature:	23°F to 131°F
Dimensions:	15.6" x 2.7" x 1.3"
Weight:	9.9oz
Provided Accessories:	Leatherette case & strap

CS10MD **Professional Hand Held Metal Detector Wand** **$54.95**

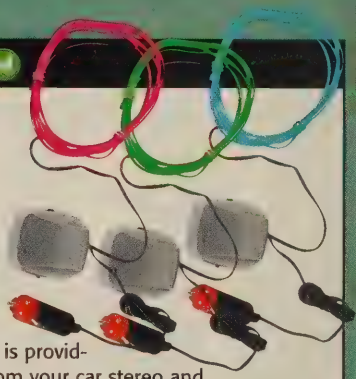
Sound Activated EL Illumination Wire Set

NEW!

Wired & Tested

- ✔ Sound activated electroluminescent wire!
- ✔ Flashes to the rhythm of the music!
- ✔ Built-in microphone
- ✔ Adjustable sensitivity

Watch The Music... With Electroluminesence!



The category in the catalog is Neat Stuff! Well, I don't think anything is more deserving of being included here than these colored EL (Electroluminescent) wire sets! What you get is 9.8' of .13" EL wire in your choice of red, green, or blue. But that's just the start!

The EL wire is connected into a miniature (2" x 3" x 1") EL wire converter. Three switch selected modes on the inverter are FULL, MUSIC, and OFF. A continuous EL illumination is provided when selected to FULL. In the MUSIC mode, a built-in microphone picks up music from your car stereo and modulates the EL wire with the rhythm and beat of the music! There is even a slide control for sensitivity. Designed for vehicle use, a standard 12V cigarette lighter plug is provided. Just plug it in, turn it on, and you're all set to "see" the music...nearly 10' of it! The thin design of the EL wire as well as the connecting wire makes it easy to custom install it anywhere in your vehicle. Whether you're wrapping your dashboard, headliner, or console, it's a breeze with the EL wire set!

NWRR30	**Sound Activated EL Illumination Set, Red**	**$27.95**
NWRG30	**Sound Activated EL Illumination Set, Green**	**$27.95**
NWRB30	**Sound Activated EL Illumination Set, Blue**	**$27.95**

Wired & Tested

High Power LED Key Lights

- ✔ Lifetime warranty
- ✔ Replaceable batteries
- ✔ Brighter than..bright!

The ultimate in convenience and safety! These tiny bright LED lights are smaller than a quarter, but brighter than most full size flashlights! Small enough for your key chain, these lights are great for dark parking lots, hallways, and anywhere you could use a superbright flashlight, but without the hassle of carrying one. With one of these on your key ring, you'll always be able to see!

SPECIFICATIONS:

Lamp:	High power LED
Batteries:	(2) Lithium cells (included)
Battery life:	12-14 hours
Beam angle:	20°
Weight:	7 grams with batteries

Unlike the imported cheapies out there you see in stores, these feature replaceable batteries, superbright LED's, have a lifetime warranty, and are made right here in the USA. They make great gifts, and even better stocking stuffers. Available in White for a brilliant beam of light, blue for a super penetrating beam of light, red for a subtle but bright illumination, and green for a soft all over illumination. *(They also blind my boss when I flash the blue one in his eyes...Blinded by the light, let's all sing!)*

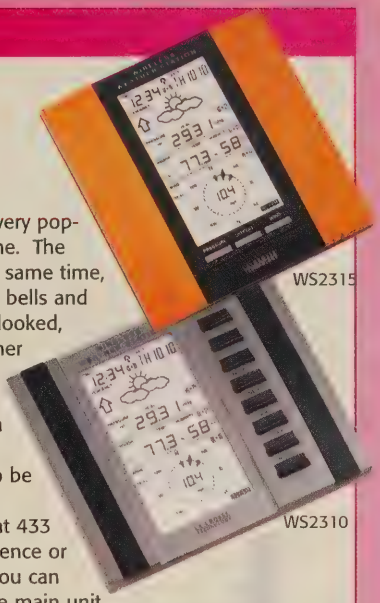
P1	**Ultra Bright Keychain Light, White**	**$9.95**
P2	**Ultra Bright Keychain Light, Green**	**$9.95**
P3	**Ultra Bright Keychain Light, Red**	**$9.95**
P4	**Ultra Bright Keychain Light, Blue**	**$9.95**

Wireless Professional Weather Stations With Atomic Time

- ✔ Wireless remote sensors
- ✔ Weather data history storage and retrieval!
- ✔ Ultra functional PC software and interface
- ✔ Wall or desk mount, Gray or Oak finish

Wired & Tested

Professional Features... Yet Inexpensive!



SPECIFICATIONS

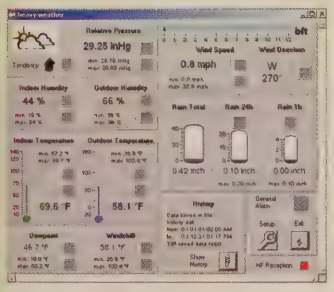
- WWVB time display with manual setting
- WWVB controlled calendar
- Display of extensive weather data, in all cases with programmable alarm functions for certain weather conditions as well as records of all minimum and maximum values along with time and date of their recordings
- Indoor and outdoor temperature display in degrees Fahrenheit or Celsius
- Indoor and outdoor relative humidity displays
- Air pressure reading in inHg or hPa, absolute or relative
- Detailed display of rainfall data in 1 hour, 24 hours, total since last reset in inches or mm
- Wind speed in mph, km/h, m/s, knots or Beaufort
- Wind direction display with LCD compass as well as numerical (e.g. 225°) and abbreviated characters (e.g. SW)
- Wind chill temperature display
- Dew point temperature display
- Weather forecast display by weather icons (sunny, cloudy, rainy)
- Weather tendency indicator
- Storm warning alarm
- LED back light
- COM port for easy connection to your PC
- All the weather data from the base receiver station and up to 175 sets of weather history data (with user adjustable measuring intervals) can be recorded and uploaded to your PC
- Dimensions: 6.1x 1.2 x 6.3 inches

Last year, our professional wireless weather station became very popular. It provided all the data you could ask for, and then some. The emails started pouring in about how great it was. But at the same time, we also heard from some customers who didn't need all the bells and whistles, but wanted professional features! We looked, and looked, and finally found it! The new 2300 series Professional Weather Stations!

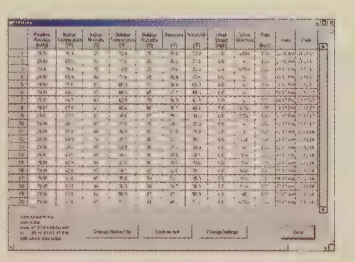
They include WWVB atomic time so you'll always be dead-on to the second! Putting time and all those features aside we took a long hard look at the weather features. First, it had to be wireless. You got it! You mount the included Thermo-Hydro Sensor/Transmitter outside, and that transmits all your data at 433 MHz to your main display unit. But what if you have interference or a large coverage area that just doesn't hack it? Simply put, you can ALSO plug in standard modular cable (included) to run to the main unit as a primary or backup to the wireless connection! It only gets better from there. The other sensors (wind and rain) connect via a similar modular connector to the main transmitter to give you only one wireless carrier to worry about! So if you do have interference problems you can run that one modular cable inside the house and it will provide all the data from all the sensors! Pretty slick!

How can it get better than that? Simple, with one serial connection all the data is displayed and stored on your PC! Not only is the software included but so is the serial cable! You plug it in and have the most incredible display of all your weather. Each major function also has a history mode to display up to 175 sets of weather history on both your main display and your PC. Of course the history file can be exported to your favorite spreadsheet! Give up? Well, you shouldn't. You can also use the Publisher sofware to FTP the weather data from your PC as an image to any web server or email address to report remote weather data!

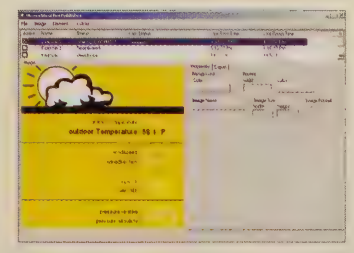
The WS2310 features a stylish gray finish with an array of display access buttons down the side. The WS2315 is a stylish oak trimmed unit with multi-function display controls at the bottom of the unit. Either unit will perform like a champ! If you're looking for reliable weather data, stored and dated min/max readings, with a great PC interface, these are for you! Of course, if you're looking for the ultimate wireless remote weather system, check out our WS2510 Touch Screen system on the next page! *(I love this stuff and when they came in the first thing I did was summon an engineer to put the sensors on the roof. Within 5 minutes I had the screen captures you see below on a PC! These are GREAT!)*



Included PC Software Screen Display



History Data File Screen Display

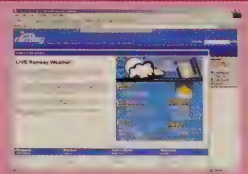


Software Publisher for site/web/email screen display

Actual Screen Captures From The PC Software Display!

Check It Out!

WS2310	**Wireless Professional Weather Station With All Sensors And PC Software, Gray Trim**	**$299.95**
WS2315	**Wireless Professional Weather Station With All Sensors And PC Software, Oak Trim**	**$319.95**



Find out what the weather is right here at Ramsey!
Check our live remote weather display at
www.ramseykits.com

SAC8157

SAC8158

WWV "Atomic" Clocks With Indoor/Outdoor Temperature

To The Second
To The Degree
Inside & Out!

- ✔ WWVB time standard with transmission check!
- ✔ Day, date, month and time to the second, 12/24 hour format
- ✔ Wireless remote temperature sensor & display
- ✔ Wall or desk mount, Aluminum or Oak finish

Wired & Tested

We looked and looked for a really nice "Atomic" clock. Needless to say, besides the general popularity of having an EXACT time standard clock, our Amateur Radio and broadcast FM customers have yet another need. Not only do they need the time to the second, but they need it in UCT or GMT time. These clocks provide time zones from GMT all the way to -12GMT plus U.S. time zones have a three letter ID!

SPECIFICATIONS	
Time:	Radio controlled, hour, minute, second, 12/24 hour
Time Zones:	GMT to -12GMT, all US time zones with zone indicator
Date:	Radio controlled month, date, year, day
Alarm:	Time, with snooze
Indoor Temp:	32°F to 122°F, 0°C to 50°C
Remote Temp:	-21.8°F to 122°F, -29°C to 69°C
Temp Accuracy:	±1.5°F
Weather Forecast:	Weather icons with tendency indicator
Language:	Day display in English, French, Spanish, or German
Remote Transmitter:	433 MHz TX6U transmitter, included
Power Requirements:	Clock 2 AA batteries (not included)
	Remote Transmitter 2 AA batteries (not included)

We didn't stop there! These clocks feature indoor and OUTDOOR temperature with a wireless 433 MHz remote temperature sensor! That's right, with one glance you see your room temperature, outdoor temperature, and the exact time to the second! What else could you ask for! How about the Weather Forecast! Yep, they even feature current weather icons with a weather tendency indicator! Couldn't ask for much more! For our International friends, day information can be displayed in English, French, Spanish or German, and temperature can be displayed in °F or °C. Available in brand new stylish sleek brushed aluminum finish or a polished oak wood finish. All clocks are selectable for 12 or 24 hour format, and include a time alarm with snooze! *(Something I need working on this catalog...snooze button!)*

SAC8157	**Atomic Clock With Indoor/Outdoor Temperature, Brushed Aluminum**	**$64.95**
SAC8158	**Atomic Clock With Indoor/Outdoor Temperature, Polished Oak**	**$64.95**

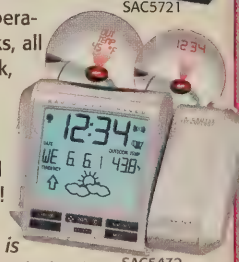
"Atomic" Alarm Clocks With Projection Indoor/Outdoor Temperature

- ✔ Same WWVB time and indoor/remote temp as above
- ✔ Adjustable projected time and temperature on wall or ceiling!
- ✔ Adjustable snooze alarm and backlight for your comfort
- ✔ Weather forecast version available!

Wired & Tested

Wake Up To The Exact Time...And The Weather Outside!

SAC5721



SAC5432

SPECIFICATIONS	
Time:	Radio controlled, hour, minute, second, 12/24 hour
Time Zones:	GMT to -12GMT, all US time zones with zone indicator
Date:	Radio controlled month, date, year, day
Alarm:	Time, with snooze
Indoor Temp:	32°F to 122°F, 0°C to 50°C
Remote Temp:	-21.8°F to 122°F, -29°C to 69°C, ±1.5°F
Projection:	Projects time or remote temp or alternating
	Projects from 3-10 feet onto wall or ceiling, rotatable
	Projection constantly with AC, on demand with battery
Weather Forecast:	Weather icons with tendency indicator (SAC5432 only)
Backlight:	EL backlight when button is pushed
Remote Transmitter:	433 MHz TX6U transmitter, included
Power Requirements:	AC Transformer included
	Clock 3 AA batteries, remote transmitter 2 AA batteries

These alarm clocks provide the same Atomic Clock features as our clocks above, PLUS they feature wireless remote temperature display, PLUS being small, nightstand size alarm clocks, all in one! All the advantages of a WWVB time standard clock, plus indoor and outdoor temperatures on an Electro-Luminiscent display!

PLUS, they display the time and/or temperature softly and pleasantly on your wall or ceiling so you can always see it! The SAC5432 even adds the weather forecast from the barometric pressure! *(The only problem I have with mine is that I have to get up when it goes off, and nothing helps with that!)*

SAC5721	**Atomic Projection Alarm Clock With Wireless Outdoor Temperature**	**$59.95**
SAC5432	**Atomic Projection Alarm Clock With Wireless Outdoor Temperature & Weather Forecast**	**$69.95**

Wired & Tested

WWV "Atomic" Wristwatches

Never Set Your Watch Again!

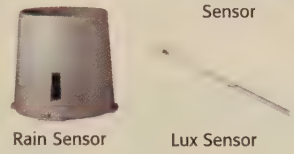
- ✔ Day, date, month, and time to the second!
- ✔ WWVB transmission checking
- ✔ Water resistant
- ✔ Lithium battery included

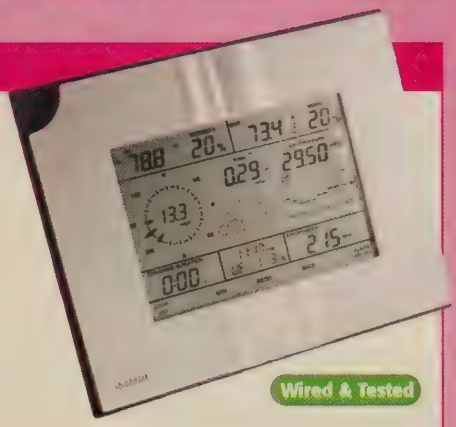
Atomic wall clocks, Atomic desk clocks, Atomic alarm clocks...but Atomic Wristwatches? You bet! No larger than a standard digital watch, yet this one is controlled by the WWVB time standard! You will never have to set your watch again! Next time someone asks you what the exact time is, you can tell them. Great for broadcasters who operate by the clock! Multifunction design provides automatic day, date, and month as well as time to the second. Even provides automatic switching to Daylight Savings Time if desired. Features WWV transmission checking, low battery indicator, and internal time memory. Available in five attractive designs.

RSAW10T	**Digital Multifunction Atomic Wristwatch, Titanium Color**	**$59.95**
RSAW10B	**Digital Multifunction Atomic Wristwatch, Black**	**$59.95**
RSAW10W	**Digital Multifunction Atomic Wristwatch, Silver**	**$59.95**
RSAW10S	**Digital Multifunction Atomic Wristwatch, Stainless**	**$59.95**

Professional Touch-Screen Weather Center

- ✔ Ultra professional Touch-Screen
- ✔ 433 MHz wireless & solar powered installation
- ✔ Solar powered sensors and transmitters!





SPECIFICATIONS

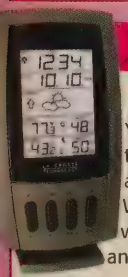
Temperature range:	Indoor 32°F to 158°F (0°C to 70°C)
Temperature range:	Outdoor -22°F to 158°F (-30°C to 70°C)
Temperature accuracy:	±2°F (±1°C)
Humidity range:	20% to 95%
Humidity accuracy:	±4%
Barometric air pressure range:	23.62 to 32.48 InHg (800 to 1100 hPa)
Air pressure accuracy:	±0.03 inHg (1 hPa)
Wind speed range:	0-124 mph (0-200 km/h)
Wind speed accuracy:	±3% or ±0.6 mph (±1km/h)
Rainfall range:	0 to 157.4 in (0 to 3999 mm)
Rainfall measurement:	0.0145 inches per tip of bucket
Rainfall accuracy:	±2%, ±0.04 in (±1 mm)
Measuring Interval:	3 minutes
Transmitting frequency:	433.92 MHz
Range in open space:	330 feet (100 meters)
Power requirements:	4"AA" Alkaline batteries or via power converter (included)
Sensor Power:	Solar powered
Temperature Zones:	Up to 8 Temp/Humidity sensors

With the popularity of our previous professional weather center, we weren't sure how to top it. Well, we did! The ultimate professional Touch-Screen system! Uses solar powered wireless sensors throughout. Just plug it in, set up the sensors, and you're in business. Instantaneous readout of all weather data, and touch screen control of all functions and historical data.

One of the newest features is the "brightness" in Lux sensor! Often asked for, and seldom found until now! Just look through the detailed specs, and see what this reads and records! Plus, you can add additional temperature/humidity wireless sensors for up to 8 zones! Perfect for large areas, inside separate rooms, inside garages, and more! All sensors are wireless and talk back to the main unit at 433 Mhz. And do you have to put batteries in them? Of course not, they're solar powered! Sorry, the main display requires (4) AA batteries or can be used with the included power supply (solar power doesn't work too well in the house!). If you want to have the weather at your fingertips, and the capability to have professional quality historical data, then the the WS2510 is for you. Want to tie it into your PC for detailed weather display? No problem, the WS2510 includes a PC output and software to provide you realtime transmission of all your data to a PC. Included third party software gives you every possible option you can think of for a computer display. If you're really serious about the weather, then the WS2510 is for you!

- ✔ Includes Touch Screen display, (4) sensors and mounting hardware
- ✔ Indoor temperature, humidity, and pressure (internal sensor)
- ✔ Wireless outdoor temperature and humidity sensor
- ✔ Eight possible wireless temperature and humidity transmitters (indoor and outdoor)
- ✔ LCD back light
- ✔ Touch-Screen panel for data access
- ✔ Minimum/maximum data for all readings with time and date recorded
- ✔ History for all data can be viewed on chart (from 24 hours to eight days)
- ✔ Air pressure display with 24 hour bar chart history
- ✔ Weather forecast icon and pressure trend indicator
- ✔ Wireless rain gauge (solar powered) tracking rainfall amount for last hour, last 24 hours and total amount
- ✔ Wireless wind-gauge (solar powered) tracking speed and direction
- ✔ US/metric option for all data
- ✔ Lux sensor for light measurement
- ✔ Current outdoor brightness from 0 to 200,000 Lux
- ✔ Simultaneous display of all weather information
- ✔ Manual set time and date
- ✔ Solar-powered outdoor sensors with rechargeable Lithium battery backup (included)
- ✔ Includes (1) WS2010-15 wind-gauge, (1) WS2010-16 rainfall sensor, (1) WS2010-20 indoor temp & humidity sensor, (1) WS2010-25 outdoor temp & humidity sensor, (1) WS2510-Lux Solar Sensor, all solar powered and wireless
- ✔ Free standing or wall hanging display

WS2510	**Professional Touch Screen Weather Center and 4 Sensors**	**$699.95**
WS2510EX	**433MHz Extender, Receives All Signals and Re-Transmits Them To Your Display**	**$119.95**
WS2510IT	**Extra Indoor Wireless Temperature/Humidity Transmitter**	**$39.95**
WS2510OT	**Extra Outdoor Wireless Temperature/Humidity Transmitter**	**$79.95**
WS2510PR	**Weatherproof Temperature Probe (For water, soil, etc.)**	**$76.95**



Wired & Tested

Wireless Weather Forecaster

- ✔ Indoor/outdoor temperature & humidity
- ✔ WWVB Atomic time
- ✔ Barometric forecast

Wireless Temperature & Humidity!

You get the basic features of our professional wireless weather centers at a fraction of the price! This attractive desk or wall mounted forecaster gives you indoor temperature and humidity. The 433 MHz remote sensor provides outdoor temperature and humidity. Three remotes can be used for zoned display. Weather forecast is provided with the unique weather icon based on barometric pressure. WWVB controlled clock includes dual time alarms with snooze. Main display requires 2 AA batteries and the remote temperature/humidity sensor requires 2 AA batteries. Multiple time zones and temperature formats are selectable. Measures 3.2" x 1.1" x 5.7".

WS7026	**Wireless Weather Forecaster**	**$94.95**

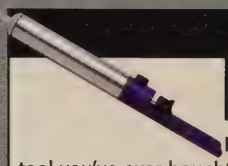
Technician's Solder

✔ Electronics 60/40 electronic solder
✔ .032" diameter, 1 pound spool

Whether it's for building your new kit, or just for your bench, this is the perfect solder. Don't destroy your kit investment by using the wrong solder, or solder with low quality flux core. This solder is made exclusively for electronic applications by one of the leading manufacturers. The size is perfect for board soldering, thru-hole, SMT and more. It is 60/40 Tin/Lead and 100% non-corrosive. One pound spool.

RTS12 **60/40 Electronic Solder** **$9.95**

Solder Sucker



✔ Eliminate PC board damage!
✔ Cleans out eyelets and holes with ease!

For 5 bucks, this will probably be the most valuable tool you've ever bought! Even the most experienced solderer has problems removing components from PC boards without one! One hand loading and one hand operation. Just heat up the joint, place the special tip over the joint, and squeeze the trigger. Solder is sucked right from the board and even plated-through holes! It's that easy!

SS01 **Solder Sucker** **$4.95**

Helping Hand & Magnifier

✔ Built-in magnifier
✔ Alligator clip holders

So you're trying to hold that small board, while holding the transistor you're trying to solder in, and holding the soldering iron, and holding the solder. Wait a minute, that's 4 hands! Not a problem! Just clip the board, junction or component you're working on onto the bench holder, swivel it wherever you want it, and go to work! What, you can't see? It even has a built-in magnifier!

HH3 **Helping Hand with Magnifier** **$8.95**

Panavise Bench Vise

✔ Holds PC boards at any angle!
✔ Heavy duty base

Trying to solder and unsolder tiny components on small boards can be a challenge for even the most experienced. Here's a gem of a handy vise that is very sturdy and has the flexibility to hold boards at virtually any angle. Includes 2 7/8" jaws and a large base/parts tray with lockable flex joints.

RTS13 **Panavise Bench Vise** **$39.95**

Jeweler's Eye Loupes

✔ Twin set, 10x and 5x power
✔ See up close, really close!

You've seen jewelers pop these things in their eyes, to check out your diamond ring. That's how they found out it was Cubic Zirconia from the Shopping Channel! Now you can have a set of 10x and 5x loupes to check out your subminiature parts and components or that ring or watch you just received to see if it's fake!

ELM2 **Jeweler's Eye Loupes, Pair** **$2.95**

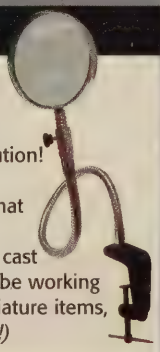
Optivisor Magnifier

✔ See those parts with ease!
✔ Professional Quality

Probably the handiest helper you can have for working with small electronic parts. Working with today's subminiature components, it's really easy to make a mistake. The Optivisor is your solution! One size adjustable headband tightens around your head. When you need to see a closeup view, simply flip the visor down. When done, flip it back up. It's that easy! Fits over your standard glasses. Same quality as the ones you see your doctor use!

RTS26 **Optivisor Magnifier Headband** **$29.95**

Bench Gooseneck Magnifier



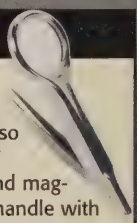
✔ 3½" magnifier
✔ 19" flexible gooseneck

When you're working with small surface mount components (SMT) there's nothing like a stronger set of eyes! Well we found the perfect, and incredibly economical solution!

This large 3½" magnifier is attached to a 19" gooseneck that stays right where you put it. And that is usually between your eyes and the PC board you're soldering! Heavy duty cast bench clamp mounts to any benchtop. If you're going to be working with SMT components, small hardware and other subminiature items, this can't be beat! *(And if you're over 40 like me...a must!)*

VTMG5 **3½" Gooseneck Bench Magnifier** **$7.95**

Tweezers-Magnifier



✔ Buy one, get two!
✔ Perfect for your tool box

Working with SMT components a good pair of tweezers is a must. And as you know, a good magnifier is also a must. So what do you keep in your tool box to solve THAT problem? Simple, this super handy combination tweezers and magnifier! This 1" magnifier is mounted on a slick 2½" chrome handle with a fold-out precision tweezers. Focal point for the magnifier is matched to the tweezers point for easy use. *(When I was taking the picture of this I used it to get a sliver out of my thumb...what a neat thing to have!)*

VTMG7 **Tweezer Magnifier** **$3.95**

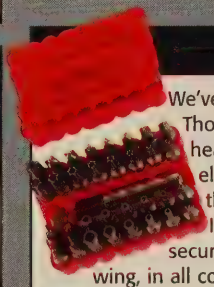
Non-Conductive Tweezers

✔ ESD safe
✔ Great for SMT use

We've discussed tweezers and magnifiers while working with SMT components. Working with some highly sensitive components our engineers asked for some ESD safe tweezers. We looked, we found, and now that they're all set, here they are for you! This set of 4 non-conductive tweezers are perfect for any static sensitive devices you may be working on. And...they are priced right!

VTTWSET2 **Non-Conductive Tweezers Set** **$3.95**

33 Piece Security Bit Set



✔ 5 types of security bits
✔ Handy case included

We've all run into them. Those special little screw heads that you can't remove! They are frequently used in electronic equipment to keep you out of it! Now with this 33 piece set of bits your headaches are gone! Includes standard ¼" driver bits for secure torx/star, secure hex, secure tri-wing, secure fork and secure four wing, in all common sizes. Includes a plastic case and a magnetic bit holder. Now YOU can take command of those screws!

VTBT5 **33 Piece Security Bit Set** **$7.95**

Pro Soldering Station

- ✔ Variable temperature controlled!
- ✔ 5 to 40 Watt
- ✔ Built-in holder and tip cleaner
- ✔ Interchangable tips

Don't Damage Your Board... Control The Temperature!

Here's the ideal soldering station for building your Ramsey kit - and for your bench! Made by Weller, the leader for decades in electronic soldering equipment. The WLC100 is the perfect soldering station for the professional or serious hobbyist who requires higher performance than a standard soldering iron, but doesn't want to pay a fortune!

The WLC100 soldering station provides variable power from 5 to 40 watts for precise tip temperature control. Just like the expensive industrial soldering stations! A built-in holder and tip cleaning sponge is included. A pre-tinned 1/8" screwdriver tip is included with the station. If you're looking for quality on a shoestring budget, the WLC100 is for you! Operates on 120VAC, 60Hz.

WLC100	**Weller Soldering Station, 5-40 Watt Temperature Controlled**	**$49.95**
ST2	**3/32" Screwdriver Tip**	**$6.95**
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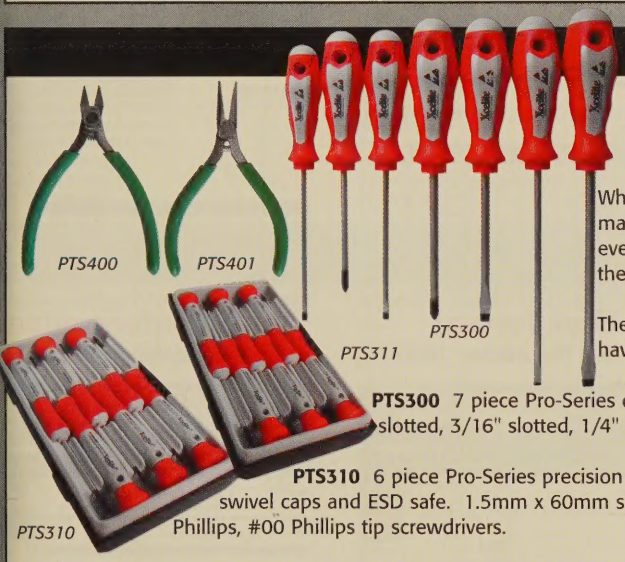

What's the key ingredient to successfully building your new kit? The proper tools! What makes the difference between enjoying the pleasure of kit building and fighting with it every step? The proper tools! When precision is needed you need precision tools, and these are just that!

These are made in the USA by Xcelite®, the standard in quality for electronic tools. We have pulled off a deal to provide our customers with their best, at a great price!

PTS300 7 piece Pro-Series driver set, tempered, treated tips, ergonomic handle and ESD safe. 1/8" slotted, 5/32" slotted, 3/16" slotted, 1/4" slotted, 5/16" slotted, #1 Phillips, and #2 Phillips.

PTS310 6 piece Pro-Series precision driver set in a hinged case. Tempered, treated tips, ergonomic handles with concave swivel caps and ESD safe. 1.5mm x 60mm slotted, 2.0mm x 60mm slotted, 2.5mm x 60mm slotted, 3.0mm x 60mm slotted, #0 Phillips, #00 Phillips tip screwdrivers.

PTS311 6 piece Pro-Series precision driver set in a hinged case. Tempered, treated tips, ergonomic handles with concave swivel caps and ESD safe. #5pt. Torx, #6pt. Torx, #7pt. Torx, #8pt. Torx, #10 pt. Torx and #15 pt. Torx tip screwdrivers.

PTS400 4" precision FLUSH cutting, tapered head diagonal cutters, with cushioned grips, ESD safe.

PTS401 4" precision long nose plier, super fine point, with cushioned grips, ESD safe.

PTS300	**7pc Pro-Series Driver Set**	**$29.95**
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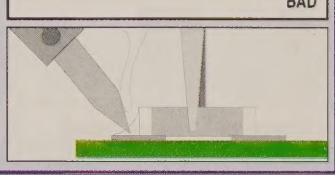
PTS401	**4" Precision Long Nose Pliers**	**$12.95**

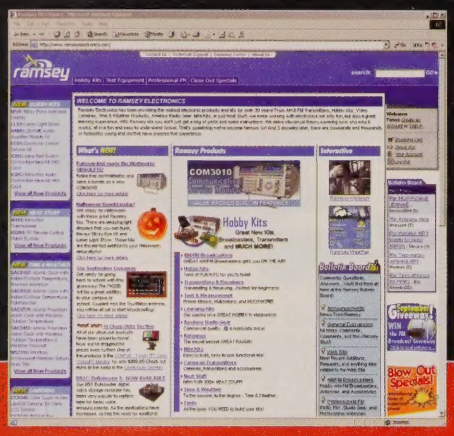
RAMSEY'S TEN COMMANDMENTS OF GOOD PC-BOARD SOLDERING

1. *If the soldering iron tip is covered with burned rosin, it cannot heat your connection very well.*
2. *If you heat only the wire and not the wire and PC trace together, a cold, bad connection is likely.*
3. *If your soldering tip is big enough to bridge two adjoining connections, it probably will!*
4. *Dirty, grubby solder will contribute to dirty, grubby connections.*
5. *Any use of acid core (plumbers!) solder in electronics work will destroy everything...DON'T USE IT!*
6. *A connection in a large area of PC-board copper requires more heat than one pin of an IC.*
7. *If your connection looks dull or brittle, it's no good.*
8. *If your connection looks like a ball instead of a shiny cone, it's no good.*
9. *Thin fresh shiny rosin core solder is easier to use for PC-board work than thicker "hardware store" solder.*
10. *Pre-tin any stranded hookup wires leading in and out of your PC-board kit project. It will prevent problems later!*

Through Hole Soldering

Surface Mount Soldering





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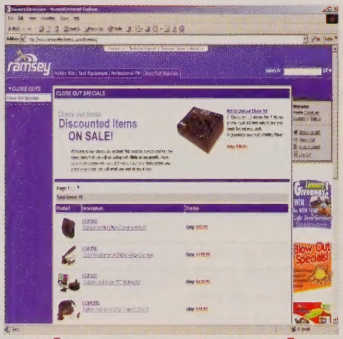

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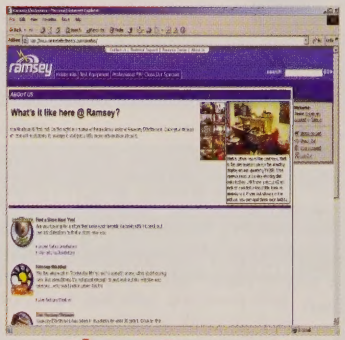

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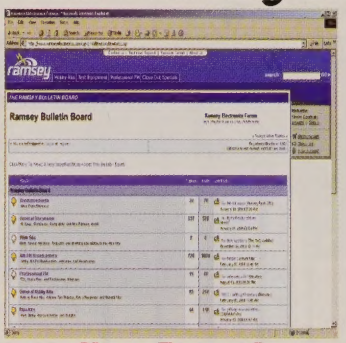
Learn MORE Than You Want!



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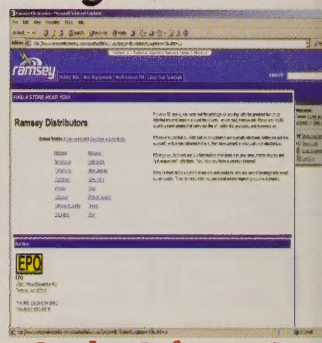
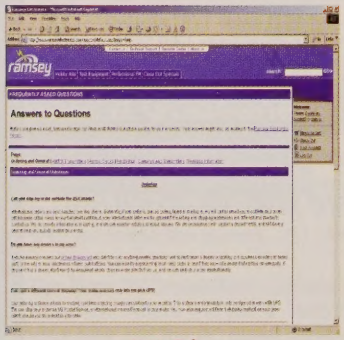
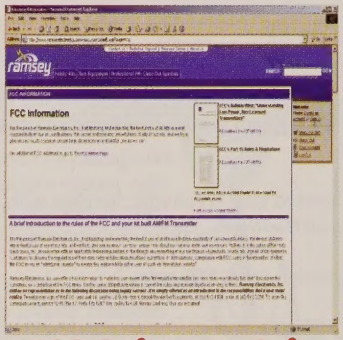


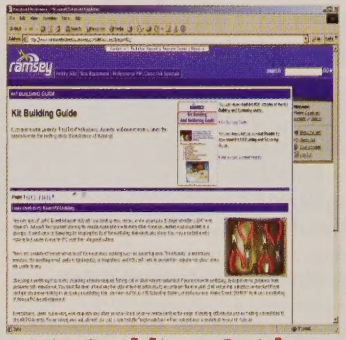
Dealer Information
Find a Dealer Near YOU!



FAQ's
All The Answers You Need!!



FCC Reference Info
Operational Guidelines!



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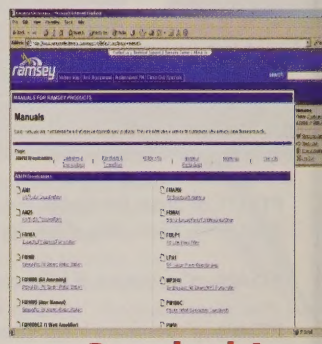

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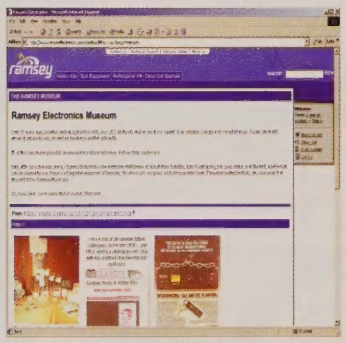

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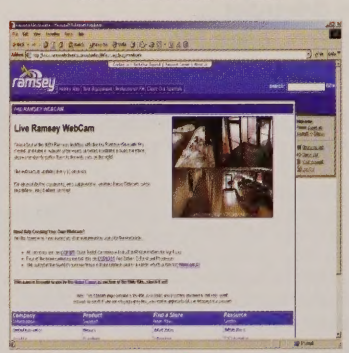

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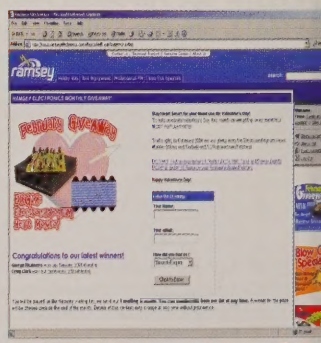

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PRODUCT INDEX

ctive antenna 45
ircraft receiver 23
M radio transmitters 29
tomic alarm clocks 58
tomic wristwatches 58
udio/RF signal generator 35
elephone Ring Down 39
attery conditioner/chargers 38
ench vise 60
inary thermometer 16
roadband preamp 36
ullshooter-II 17
able polarity checker 21
able tracer 38
apacitance inductance meter 37
oaxial cable tester 39
ode practice oscillator 26
omm service monitor 42
igital clock 15
igital voice storage 17, 30
irection finders 26
TMF controller interface 16
asy-key CW keyer 26
CG heart monitor 13
lectroluminescent wires 56
lectronic cricket sensor 15
lectronic dripping faucet 18
lectronic learning labs 46, 47, 48
lectronic multi tone chime 5
lectronic siren 18
lectronic watch dog 5
M broadcast antennas 32
M broadcast band receiver 23
M low pass filter 31
M power amplifier 27
M radio 21
eiger Muller counter 4
M broadcast amplifier 31
nfra-Red controllers 11
Infra-Red illuminator 54
Infra-Red repeaters 12
Infra-Red thermometer 55
Ion generator 10
Laser audio communicator 8
Laser light show 8
Laser trip sensor 10
LCR & temperature meter 41
LED 3D Christmas tree display 3
LED bargraph meters 38
LED blinky 18
LED Blinky Eyes display 3
LED Christmas tree display 3
LED dice games 20
LED pumpkin display 3
LED holiday bell display 3
LED key lights 56
LED magic message wand 17
LED quiz table 20
LED roulette game 20
LED Santa display 3
LED switcher blinky 21
LED traffic signal 20
LED wheel of fortune 20
Light beam communicator 8
Light sensitive switch 21
Liquid level controller 5
Low frequency SWL converter 25
LPFM stereo transmitters 33
Magnifiers 60
Metal pipe & wire detector 5
Microwave motion detectors 12
Mini VHF receiver 25
Model rocket transmitter 23
Motor speed controller 16
Multimeters 41
Music lights 8
Oscilloscope-personal hand held 40
PC board antennas 44
Phone patch mixer 30
Pic chip programmer 37
Plasma generator 9
Pocket Vu meter 21
Power cost controller 55
Power supply, adjustable 39
Programmable message board 4
Protolab circuit simulator 40
QRP linear amplifiers 24
QRP mini-receivers 24
QRP mini-transmitters 24
Rat Blaster varmint repeller 13
Receiver preamps 25
RF actuated relay 19
RF detector probe 36
RF linear power amplifier 31
RF power meters 36
RF preamp 19
RF remote control system 55
RF signal generator 43
RF wireless link modules 19
SCA subcarrier decoder 23
Security bit set 60
Security metal detector wand 56
Sensor activated robot car 6
Shortwave converter 22
Shortwave receiver 22
Signal magnet antenna 45
SINAD meter 35
SMT high intensity blinky 7
SMT LED Christmas tree display 3
SMT LED smiley face 20
SMT LED multi color blinky 7
Solder 60
Solder sucker 60
Soldering station 61
Speech scrambler/descrambler 22
Speed radar gun 17
Stepper motor driver 16
Stereo FM transmitters 27, 28, 29
Stereo headphone amplifier 14
Stereo Super Ear amplifier 21
Stereo transmitter companion 31
Strobe light high power LED 7
Subminiature audio amplifier 14
Super Snoop amplifier 18
Telephone recorder controller 15
Telephone speakerphone 15
Telescopic whip antenna 44
TFT color monitor 52
Tickle stick 18
Time lapse VCR 53
Tone encoder decoder 19
Tools 60, 61
Touch switch 19
Touch tone decoder 19
Touch-tone reader 37
Tri-Field meter 14
Tru-match FM antenna 45
Tweezers 60
Ultrasonic parking radar 6
Universal timer 18
USB experimenter's board 4
Van deGraaf generators 9
Van deGraaf generator wands 9
Vehicle audio power amplifier 6
Video cameras 50, 51, 52
Video switchers 53, 54
Video transmitters 54
Voice switch 18
Walking electronic bug 13
Warble alarm 18
Water alarm 21
Weather stations 57, 59
Wireless LAN adapter cable 39
Wireless trip sensor 10
WWV time receiver 22
Yagi antennas 44

SKU INDEX

PRODUCT	PAGE	PRODUCT	PAGE	PRODUCT	PAGE	PRODUCT	PAGE	PRODUCT	PAGE	PRODUCT	PAGE	PRODUCT	PAGE	PRODUCT	PAGE
403	44	COM3010	42	FMLP1	31	LBC6K	8	MK155	17	PTS310	61	SAC8157	58	TT7	19
004	44	CPO3	26	FMLP1WT	31	LBC6K2	8	ML1C	8	PTS311	61	SAC8158	58	TV6C	54
184	44	CRB	13	FR10C	25	LC1C	37	MR6	23	PTS400	61	SBRGB1	7	TX433	19
A7C	45	CS10MD	56	FR146C	25	LEDS1C	7	MR6WT	23	PTS401	61	SC1C	22	TX916	19
AC125	3	CS2	49	FR1C	23	LEDS20	7	NWRB30	56	PX50	33	SCA1C	23	TXE433	19
AM/FM7	49	CT255C	16	FR220C	25	LEDS8	7	NWRG30	56	PXB50	34	SG560WT	35	TXE433A	19
AM2	49	CW7C	26	FR6C	25	LLS1	8	NWRR30	56	QAMP20C	24	SG7	17	TXE916	19
AM1C	29	DCI1C	16	G407	5, 6	LPA1C	31	P1	56	QAMP30C	24	SHA1C	14	UAM2	14
AM25	29	DDF1	26	G416	4, 5, 6	LPA1WT	31	P2	56	QAMP40C	24	SHA1WT	14	UT5	18
AR1C	23	DDF1WT	26	HFRC1C	22	LPY2	44	P3	56	QLRD1	39	SM100	45	VG200	9
AVS10C	54	DF1C	26	HH3	60	LPY26	44	P4	56	QRP20C	24	SM100WT	45	VG200W	9
B8045	4	DMM240	41	HPS10SE	40	LPY41	44	PA100	27	QRP30C	24	SM1WT	35	VG200WT	9
BA1	49	DN1C	38	HPS40	40	LPY915	44	PCC120	55	QRP40C	24	SM3	18	VG400W	9
BE66	3	DN1WT	38	HR20C	24	LSW1	21	PG13	9	RB1	13	SMD1C	16	VG400WT	9
BL1	18	DVM345DI	41	HR30C	24	LTS1	10	PH14C	38	RF1	36	SP1C	15	VLF1C	25
BL2	7	DVM850BL	41	HR40C	24	MA1	49	PH15C	38	RFS1	19	SPS18	14	VLF1WT	25
BN9	18	DVM890	41	ICI16	11	MB1	18	PH16C	38	RR1C	12	SR2C	22	VS1	18
BS2C	17, 30	ECG1C	13	ICI1C	11	MD3C	12	PIC1	37	RRW1AC	12	SR3	49	VTBT5	60
BS2WT	17, 30	ECG1WT	13	ICI2C	11	MK108	21	PL130	46	RRW1BC	12	SS01	60	VTMG5	60
C2000	54	ECGP10	13	IG7	10	MK116	3	PL300	47	RRW1PC	12	SS70AWT	22	VTMG7	60
C2001	54	ECS1	15	IR1	54	MK117	3	PL500	48	RS204	55	SS70C	22	VTTWSET2	60
CCD308	50	EDF1	18	IR101	55	MK118	21	PLAB4	40	RSAW10B	58	ST2	61	WA10	44
CCD309	50	ELM2	60	ISMC1	39	MK119	20	PM10DC	36	RSAW10S	58	ST3	61	WCAH2851	5
CCD321	50	FM100B	27	K2639	5	MK122	3	PM10DCWT	36	RSAW10T	58	ST4	61	WCT20C	38
CCD328	51	FM100BEX	27	K2645	4	MK125	21	PM50	36	RSAW10W	58	ST6	61	WCT20WT	38
CCD329	51	FM100BWT	27	K2655	5	MK130	3	PM50WT	36	RSG1000B	43	STC1C	31	WEB1	13
CCD330	51	FM10C	29	K3400	20	MK131	20	PPM3C	30	RTS12	60	STC1WT	31	WLC100	61
CCD340	50	FM25B	29	K3502	6	MK132	21	PPM3WT	30	RTS13	60	TD1	19	WS2310	57
CCD341	50	FM30	28	K3503	6	MK133	20	PR10	25	RTS26	60	TFM3C	14	WS2315	57
CCD342	50	FM35WT	28	K6600	5	MK136	21	PR100	25	RX433	19	TG2C	37	WS2510	59
CCD343	52	FMA200	32	K7102RS	5	MK141	20	PR2	36	RX916	19	TG2WT	37	WS2510EX	59
CCDS310	53	FMA300	32	K8045	4	MK142	3	PR20	25	RXD433	19	TM100	32	WS2510IT	59
CCDS311	53	FMA400	32	K8055	4	MK145	3	PR40	25	RXD433A	19	TM100	45	WS2510OT	59
CCM501	52	FMAC	29	KSR1	6	MK146	21	PS21	9	RXD916	19	TS1	19	WS2510PR	59
CCT1	39	FMBA1C	31	LABC1C	38	MK150	20	PS21	38	SA7	19	TS4	18	WS7026	59
CCT960	53	FMC100	32	LABC1WT	38	MK151	15	PS32LAB	39	SAC5432	58	TT1C	15	WTS1C	10
		FMC50	32	LB56C	8	MK152	20	PTS300	61	SAC5721	58	TT1WT	15	WTS1WT	10

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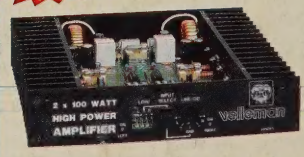

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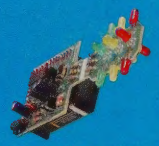
MK131, Page 20



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K3400, Page 20

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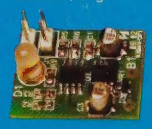
SBRGB1, Page 7



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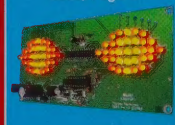
Blinky Eyes Animation

BE66, Page 3



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SMT Smiley Face

MK141, Page 20

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